MARINE REVIEW.

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Prosperity Ahead.

The iron mining companies operating in the Lake Superior region will not be at fault if the output of ore in 1898 does not reach 14,000,000 gross tons. Shipments are now, and have been for some time past, fully up to every ton of capacity in machinery and cars that can possibly be secured at Lake Erie ports. This has been the case practically since the opening of navigation, but marked improvement in all branches of the iron and steel industries, noted everywhere during the past two weeks, has spurred the ore shippers on to crowding the docks and railway companies to the last ton of capacity. In the mining region the railway and dock facilities come nearer to the output that is demanded, but there is another drawback, that of insufficient labor at the mines.

These conditions in ore, coupled with a most promising fall grain outlook, are causing vessel men to look for a steady gain in freights during the balance of the season, but the capacity of the lake fleet is so large when fully in operation that the advance is slow. Even a suspension in hard coal shipments out of Buffalo, the volume of which for a whole season is not very large, was sufficient to check advances in the lake freight market during the past week. Still, it is admitted that the situation is growing more favorable from the vessel owner's standpoint from day to day, and shippers are trying to make freight contracts on coal and ore at a little above present figures wherever they can so shape their business as to admit of contracts. At this writing there is some Lake Superior coal, some Gladstone coal and a block of 25,000 tons of Lake Superior ore (Duluth) on the market. The shipper offering the Lake Superior ore claims to be in position to cover it at 50 cents to Sept. 15.

New gossip is furnished each week regarding the drift of iron mining properties into big hands. The sale of the Pioneer mine, a large producer on the Vermillion range, to the Carnegie-Oliver interest is now followed by renewed efforts to consolidate the Minnesota Iron Co. and Illinois Steel Co. More conferences with this end in view are now being held in New York, and other steel companies are being considered in the negotiations. The Johnson plant at Lorain is the latest mentioned in connection with the consolidation.

Lake Ship Builders Barred Out.

Ship building firms on the great lakes will not be allowed to bid on the torpedo boats, for the construction of which the United States government will open bids next week. The nature of the refusal is explained in a letter which was received a few days ago by the Globe Iron Works Co. of Cleveland from Secretary of the Navy Long. The secretary says:

"Referring to your letter of inquiry regarding torpedo boats to be built for the government, I have to state that owing to the arrangement as to the naval force to be respectively maintained on the American lakes, entered into under date of April 29, 1817, between the United States and Great Britain, and in view of the decision of Nov. 1, 1895, by the president, that said arrangement forbids the building of war vessels on the great lakes, the department cannot encourage the making of bids for the construction of the torpedo vessels by firms whose works are situated upon the lakes or their connecting waters. Such matter is now the subject of negotiations between this government and Great Britain, and it is trusted that it will be disposed of speedily in such a manner that hereafter the department will be permitted to award contracts to firms established upon these waters."

The Globe company was, so far as known, the only lake ship building firm that contemplated bidding on these vessels. Bids would have been submitted for four torpedo boats, but not for the destroyers, which are of too great a size to pass through the canals. Assistant Secretary R. L. Ireland of the Globe company states that the company will drop the matter without any effort to be allowed to submit bids pending an adjustment of the treaty question. He states, however, that his company will take steps to use its influence to secure the abrogation of the treaty.

The Wheeler Ship Yard.

There is about as much truth in the story of the Bessemer Steamship Co. undertaking the building of more vessels at the Wheeler ship yard, West Bay City, as there is in the other report, that James Davidson had offered 60 per cent. of the value of Wheeler bonds to the creditors who hold a first mortgage on the plant. It has been suggested that if Capt. Davidson has suddenly become so absent-minded in money matters as to pay a big price for a steel ship yard at West Bay City, he is acting for the underwriters, who have been trying for a long time to force the steel yards to submit bids on repair work, but even this is not at all probable, as it would be a very difficult matter to secure the co-operation of insurance companies in such a scheme. Capt. Davidson has his hands full with a big fleet of wooden ships, and Mr. Rockefeller's representatives will certainly go very slow on the question of entering into the ship building business. It may as well be admitted, anyhow, that the West Bay City plant is greatly at a disadvantage on account of location, especially as regards repair work, and most vessel men are of the opinion that there will never be another steel ship built in the place. There is as much uncertainty as to the final dispositon of the plant and the settlement between creditors as there was when announcement was first made of the failure of Wheeler & Co., but now that the last of the Bessemer ships are leaving the yard, it is expected that the legal proceedings will be taken up in court with as little delay as possible. Mr. Wheeler is understood to have made an effort to secure the management of the Maryland Steel Co.'s ship yard, which is about to be reopened at Sparrow's Point, Md., but he was unsuccessful.

ST. LAWRENCE TRAFFIC.

LAUNCH OF ANOTHER STEAMER DESIGNED ESPECIALLY FOR THIS SERVICE CALLS ATTENTION TO ITS POSSIBILITIES.

The launch, which has been set for this (Thursday) afternoon at the yards of the Cleveland Ship Building Co. at Lorain, of the steel steamer Huron, building for R. R. Rhodes of Cleveland, serves to again call attention to the possibilities that will be opened by the completion of the work of enlarging the St. Lawrence canals to Welland canal size. The Huron is an almost exact duplicate of the steamers St. Paul and Minneapolis, built for Mr. Rhodes by the Chicago Ship Building Co. some time ago, and all three represent in their dimensions the maximum capacity of the Welland and new St. Lawrence locks. Indeed the vessels were designed with special reference to these limitations. The Huron is 252 feet over all, 238 feet keel, 42 feet beam and 26 feet draught. The only point at which she is at variance with the two steamers first constructed is in the depth, which is about 6 inches greater—not enough, of course, to affect the carrying capacity to any appreciable extent. The boilers differ, in that they have been fitted with Howden hot draught, and the engines are expected to develop increased power. The approximate value of the new steamer is $125,000, and she will be ready to go into commission toward the latter part of the season.

Mr. Rhodes is, so far as known, the first vessel owner to construct steel steamers with direct reference to their utilization in the St. Lawrence traffic under the new conditions, but his example will no doubt be followed by others as the time approaches for the opening of the new locks. This will be late next year at the very earliest. In conversation with the Review this week Mr. Rhodes said that his present plans simply contemplated traffic between upper lake ports and Montreal, but he intimated that should it appear advantageous to take cargoes for Atlantic coast or even foreign ports, he would not hesitate to seize the opportunity. The bulk of the traffic, at least at first, will in all probability be in grain, although there is a possibility of its development into other lines later.

Contrary to natural expectation, the war bids fair to give quite as much of an incentive to the project for an American deep waterway connection between the lakes and the sea as to the Nicaragua canal, or any of the other proposed improvements to which it is expected to call attention. The question is also being taken up by prominent newspapers and class journals all over the country. An example of the class of comments made is found in the leading editorial in the current issue of the Iron Age. In part it is stated:

"Hope is inspired by the new financial conditions that some needed improvements may soon be undertaken by the government. Prominent among these is the construction of a system of canals on American soil connecting the great lakes with the Atlantic seaboard. The necessity of such a waterway, capable of handling fairly large vessels, has been practically demonstrated from a military standpoint. It would have been greatly to the advantage of this government if the lake vessels suitable for ocean service could have been drawn upon in the recent exigency. It would further be to the advantage of the nation at large if the facilities of the lake ship yards could be made available for the wider field of ocean service. The time may not be far distant when these facilities may be a determining factor in the strength of this nation. An enormous addition to our sea power would immediately be made upon the completion of a 20-foot channel from Lakes Superior and Michigan to the seaboard, irrespective of the route selected. It would be well, of course, to have as short a route to the sea as possible and one that would be open to navigation each season as long as the lakes themselves are navigable. The difficulties to be overcome are neither insurmountable nor seriously formidable, being merely a question of the appropriation of a sufficient sum of money for the purpose by the national government. The work is of such magnitude that it can only be undertaken by the nation.

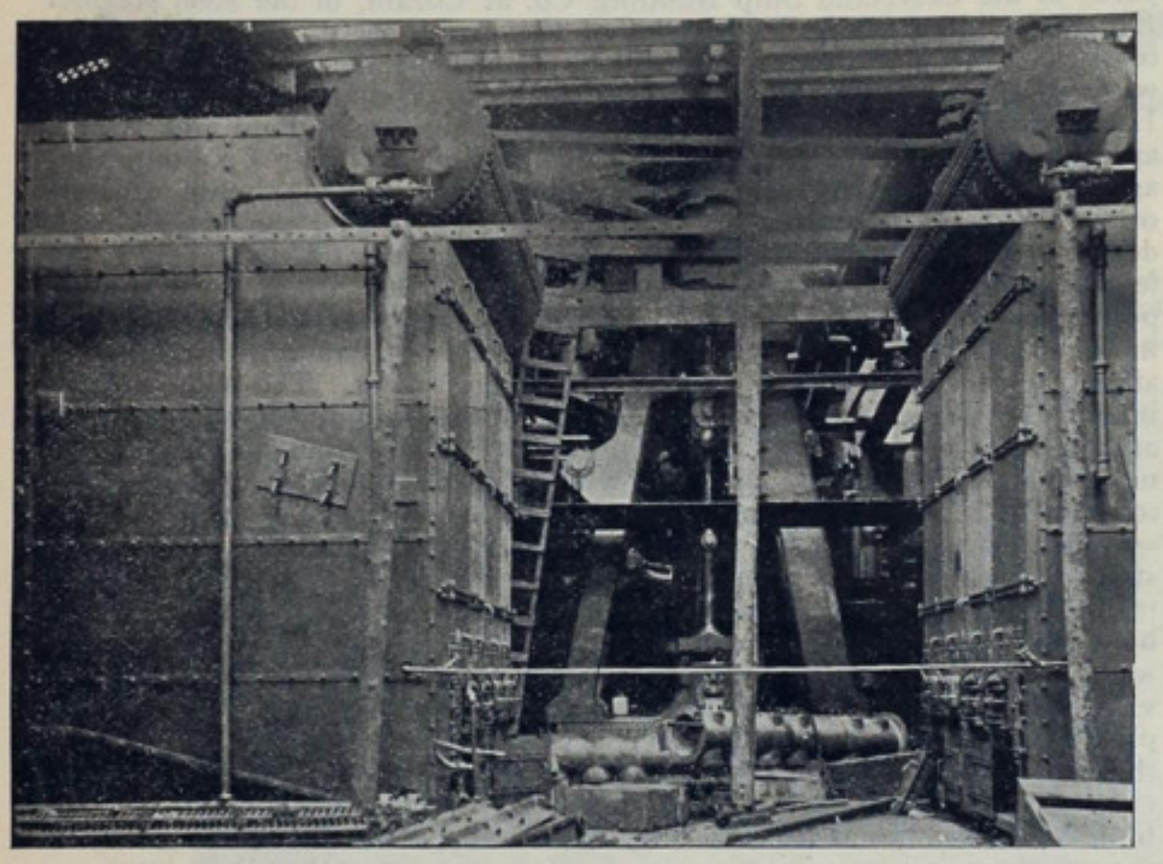
"The Canadians, with their much smaller resources, have unflaggingly continued the work of improving their canal system, and will next year have a 14-foot channel from the lakes through the St. Lawrence. It will be capable of accommodating vessels with a tonnage of about 2,000, and will therefore permit a direct trade between lake ports and foreign markets in comparatively small cargoes. Even under such a limitation the lake shipping interests are looking forward to the enlargement of their field of operations with great expectations. Not only will food products, raw natural products and much manufactured merchandise from our rich interior states be transported in unbroken bulk to any foreign seaport, but quite a fleet of lake vessels will have the opportunity of repairing to more favorable climes during the winter and continuing to earn something for their owners. The United States should certainly not be outdone by Canada in developing so important a channel of internal and foreign intercourse. Much more should be done for our citizens. Vessels capable of hauling 5,000 tons or more should be able to pass freely between the lakes and the ocean through our own territory. The completion of such a system of canals would clinch the hold we have now obtained on the commerce of the world. Direct shipments from lake ports to any part of the earth would give us an immense advantage."

Already the beneficial effect of the war is apparent in the great eagerness of capital to enter the Cuban and Porto Rican trade. New lines of steamships to those islands are sure to be established, and if the administration makes the right sort of a ruling relative to the provisions of the coasting trade laws, the vessels for those lines will be built in American yards.

STEAMER ALEXANDER McDOUGALL.

A WHALEBACK FREIGHTER FITTED WITH QUADRUPLE EXPANSION ENGINES AND THE LARGEST WATER TUBE UNITS EVER CONSTRUCTED.—CREDITABLE RECORD ON INITIAL TRIP.

The whaleback steamer, Alexander McDonald, the largest vessel of her class ever constructed, and which was recently completed at the yard of the American Steel Barge Co., West Superior, Wis., is essentially a very interesting boat in many respects. Her unusual size and great carrying capacity have provoked considerable interest. She represents also the latest practice in marine engineering, as she is fitted with quadruple expansion engines and Babcock and Wilcox boilers, which constitute the largest water tube units ever constructed. Indeed the entire installation of machinery is one of which lake engineering may well be proud, and a most satisfactory demonstration of its capabilities was made on the recent initial



BOILERS OF STEAMER ALEXANDER McDOUGALL.

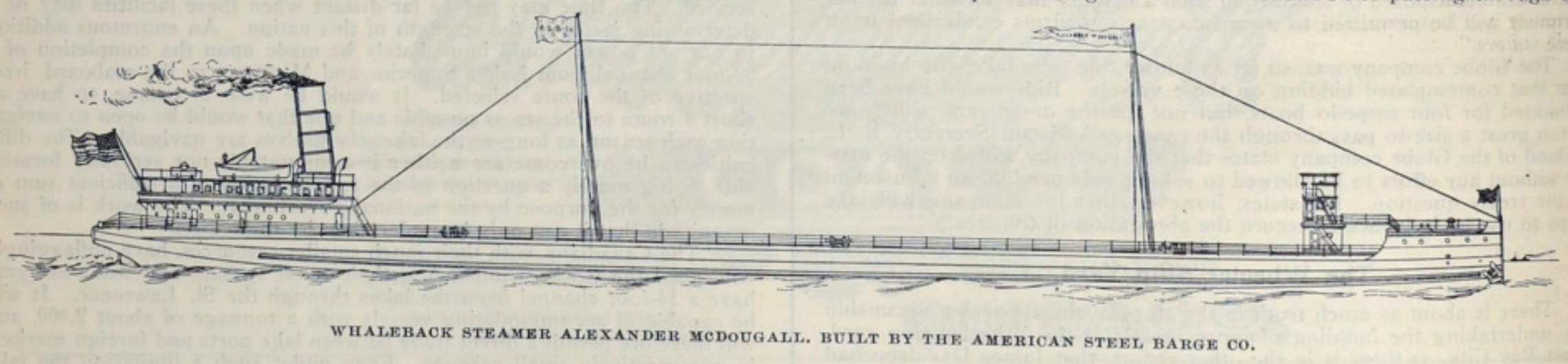
trip of the vessel when she carried from Duluth to Cleveland a cargo of 7,319 net tons of ore on a draught of 17 feet 10 inches aft and 17 feet 8 inches forward. This cargo broke all records for vessels of the whaleback type and has been exceeded by only one steamer cargo, that of the Superior City, which in June carried 7,642 net tons from Escanaba to South Chicago. The schooner John Fritz, on her initial trip, of course, surpassed even these cargo records, carrying 7,795 net tons of ore from the head of the lakes to a Lake Erie port. The Fritz is one of the Rockefeller tow barges which are of great capacity, on account of little space being given up to machinery.

....

To return to the McDougall's machinery and boiler equipment, however, it may consistently be said that never was a more satisfactory showing made on an initial trip. The boilers throughout the trip made plenty of steam; in fact it was an easy matter for the firemen to "pop" the safety valves even when the engines were wide open. Although the trip was made in excessively warm weather the coolness of the fire-room was remarked by all on board. On the trip down the steamer consumed forty-five tons of coal in fifty-three hours, including six lay hours at the Sault. Considering that the cargo was one of the largest ever carried from the head of the lakes, and at a speed of eleven miles an hour, the consumption of coal is considered remarkably small. The boilers contain about 7,000 square feet of heating surface and 150 square feet of grate. They are fitted with two small fans, which supply air to the ash pit, although on the first trip these fans were not used excepting for a very short space of time. No trouble whatever was experienced in keeping a constant water level, as the steam drums are 42 inches in diameter and 13 feet 6 inches in length. A constant steam pressure of 235 pounds per square inch was maintained at the engines. It is claimed that by the use of these boilers in the McDougall over 125 tons are saved in weight, thereby enabling the vessel to carry that much extra ore on the same draft. This would certainly represent quite an item of freight in the business of a few seasons on the lakes where the trips are short.

The Alexander McDougall is of the whaleback type with the modification of a straight stem instead of the spoon bow heretofore a characteristic of this type of ship. She is 430 feet over all, 414 feet keel, 50 feet moulded depth, and 27 feet deep. She has a double bottom 5 feet deep, extending all fore and aft, with forward and after peak tanks, having a total water ballast capacity of 2,000 net tons. Her displacement on a draft of 18 feet, is about 10,000 tons. Propelling power is furnished by a set of quadruple expansion engines of the Cleveland Shipbuilding Co's make. The hull is of steel throughout. There are thirteen cargo hatches, each 24x8 feet in the clear, spaced 24 feet centers, in addition to a large hatch for coaling purposes, the coal bunker capacity being 350 tons. There are two steel pole masts about 90 feet long, with "crow's nest" for the lookout on foremast. Tonnage of the vessel is 3,686.39 gross and 2,662.94 net. Accommodations for a part of the crew are provided in the forecastle, where there is also a steam Providence windlass for the handling of Baldt stockless anchors, which stow in hawse pipes similar to those on freighters of ordinary type. The "Texas" having accommodation for captain and mates, with bridges and pilot house above, is placed well forward, just abaft the forward hatch, and is connected to forecastle head by a portable bridge. There is a large single turret aft affording entrance to stoke hold, firemen's quarters, second engineer's quarters, etc. On the top of the after turret is a commodious steel deck house containing captain's spare room and quarters for chief engineer, steward, dining room, kitchen and pantry, crew's mess, extra staterooms, bathrooms, etc. There is a complete installation of electric lights including arc lights on deck and in holds for facilitating the working of cargo at night. Steam steering gear, duplicate ballast pumps, steam winches and capstans are also fitted.

The Alexander McDougall was designed by Mr. A. C. Diericx of the American Steel Barge Co. who has prepared the plans for the other vessels of the fleet constructed by the company in recent years. Since the organization of the American Steel Barge Co. there have been constructed by or for the firm a total of forty whalebacks. Of this number two were built for the company at Brooklyn and one was built at the company's yard at Everett, Wash. The McDougall is the thirtieth whaleback built at West Superior, the first seven having been constructed at Capt. McDougall's old yard at Duluth. Next to the McDougall the largest whaleback is the John Ericsson, with a length of 430 feet.



WHALEBACK STEAMER ALEXANDER McDOUGALL. BUILT BY THE AMERICAN STEEL BARGE CO.

A Problem for the Lake Carriers' Association.

Indications point to a necessity for the Lake Carriers' Association to within a very short time assume a definite policy with regard to the agitation for the abolition of tolls through the Welland canal. The request for some action on the part of the association comes from Mr. J. W. Westbrook, superintendent of the Ogdensburg Transit Co., a package freight line, which has all along held membership in the association. Mr. Westbrook wishes the Lake Carriers' Association to take steps to bring this matter to the attention of the joint United States and Canadian commission soon to meet for the purpose of adjusting commercial differences between the two countries. He goes on the very natural hypothesis that the consideration of the matter at the behest of the general organization would be far more likely to induce a satisfactory solution than if the attention received were dependent upon the petitions of individual vessel owners.

The desire for the agitation of this question is by no means confined to the Lake Ontario members of the association. Vessel owners at all other ports on the chain of the lakes are of course interested to a greater or less extent, and this is especially true of owners of steel boats of the St. Paul-Minneapolis class, who are looking forward to the engaging in the trade to Montreal as soon as the enlargement of the St. Lawrence canals to Welland size makes it permissible.

The objection, if any is made, may be expected to come from the city of Buffalo, which, by the way, has several members of the Lake Carriers' committee on legislation, to which it will in all probability be necessary to refer much of the detail relative to the disposition of the matter. Nor is such a stand—should it be taken by the Buffalo gentlemen—to be wondered at. All shipments of grain or other commodities passing through the Welland would of course be diverted from Buffalo, and even if from the standpoint of the non-resident of Buffalo these appear at present quite small, there is of course the possibility of their growth to much greater proportions when the St. Lawrence canals are completed, a danger to which the Buffalo vessel men can hardly be expected to blind themselves.

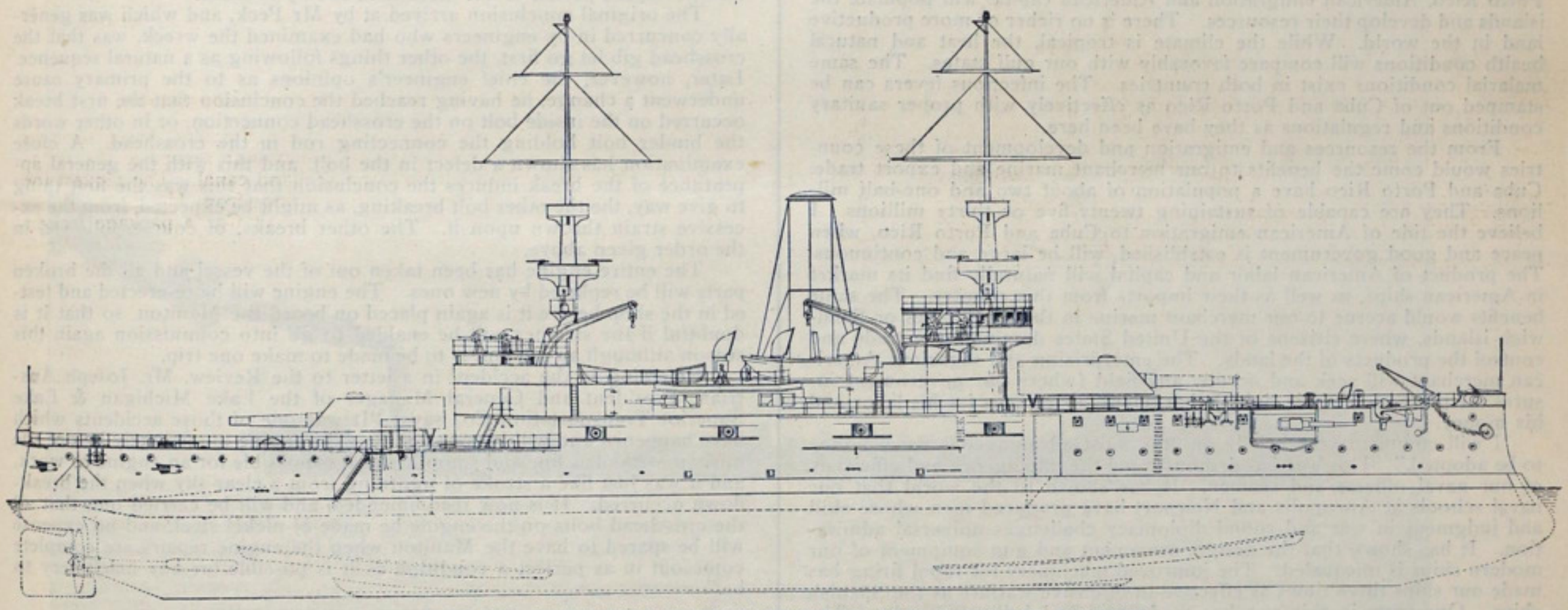
On the other hand the interest of the members of the Lake Carriers' Association elsewhere, and particularly those on Lake Ontario, must be considered; in the case of the latter all the more so perhaps, for the reason that they have not up to this time had opportunity to reap many of the benefits which the association has been enabled to confer upon members on the other lakes. Certainly some declaration of policy must be made by the association, and that too with very little delay, inasmuch as the time for the meeting of the commission is not far distant, and it will be found advantageous to have the matter given a place on the regular program of subjects for consideration.

It is announced that the government will at once take up the matter of establishing a coaling station and constructing a dry dock at Honolulu. It is estimated that $1,500,000 will be required in order to provide the necessary piers, coaling sheds and apparatus and constructing the dry dock.

Our New Battleships Pictured.

As will be seen by reference to the accompanying illustration, the three new battleships Ohio, Maine and Missouri, for which bids will be opened on Sept. 1, will be radically dissimilar to anything in the battleship line which the United States has at present, either building or in commission. The drawing shown, and which has not heretofore been published, represents the outboard plan of the battleships as at present designed. whether this would be altered or not has been the topic of a very lively discussion for several weeks past. It was for a time considered whether it would not be better to delay all action in the matter of contracts for these ships with a view to having congress at its next session take up the subject of greater speed.

This plan was finally rejected, however, and the board of bureau chiefs of the navy department decided to open bids on Sept. 1, as originally intended. This decision was induced in a great measure by the announcement of ship-builders, after the receipt of the circular stating that preference in the awarding of contracts would be given to firms guaranteeing speed in excess of specifications, that they would be able to construct 18-knot battleships on the present designs, which contemplate a displacement of only 11,500 tons. In view of these representations, it was very naturally concluded to see what the shipbuilders had to offer before taking further action. A point that will have to be considered after the bids are in, however, granted that the shipbuilders demonstrate their ability to keep their promise, is the extent of sacrifice necessary in bunker capacity and consequently steaming radius. But the determination of the board not to accept anything less than 17-knot vessels is evident, and if the shipbuilders cannot guarantee this speed the whole subject will have to be reopened. Everybody who knows anything about the ability of American shipbuilders will have no fear of their being found wanting in the present instance, and obviously it is better so, for the preparation of new plans would necessitate a delay of some months which could hardly be expected to please the American public in its present mood. The three new battleships were fully described in the special Navy number of the Marine Review last week.



PLAN OF LATEST UNITED STATES BATTLESHIPS—OHIO, MAINE AND MISSOURI.

Gas Beacons and Buoys.

Senator James McMillan of Michigan, who has ever been most energetic in looking after the interests of vesselmen in congress, favors the Review with a letter which he has just received from the light-house board on the subject of the provision of additional gas buoys on the great lakes. In the last sundry civil appropriation bill provision was made for the expenditure of $550,000 for buoyage purposes generally throughout the United States, and it was understood by officers of the Lake Carriers' Association, who had been instrumental in securing this appropriation, that $100,000 of it was to be applied to the purchase of gas buoys, a liberal supply of which were to be distributed on the lakes. It was also understood that in some places where there is difficulty in maintaining ordinary lights, gas beacons were to be substituted. Senator McMillan wrote the board on this score, and the letter which he sends the Review is an answer from CommanderT. M. Ackley, naval secretary of the board who says:

"Plans of the board for placing more buoys on the great lakes during the present season have not yet been matured. It is feared, however, that little can be done in that direction at present, as congress failed to make appropriation for new light-house tenders for use on the lakes, which the board urgently recommended, the present tenders being insufficient in size to handle many more gas buoys than are now in position. It appears that the appropriations proposed by the senate for lake light-house tenders failed in the house. The small, weak and old tenders now in use are utterly unable to do much more than is done at present in the way of handling the ponderous gas buoys at the end of the season of navigation, when they must be removed quickly lest they should be caught and maybe sunk in the ice. It is also impracticable for the tenders to do much more than they now do in keeping gas buoys supplied with the gas they need.

"As to gas beacons the board has taken the proper steps to have one placed at Racine reef near Racine, Lake Michigan. The engineer of the district was directed to contract for the placing of the beacon on July 8. This work will be pressed to a conclusion as rapidly as possible. The board has not been made aware of any strong desire on the part of the lake vessel interests for the immediate establishment of more buoys than are now in use on the lakes. There are only some fifty gas buoys in all the waters of the United States, and thirty of those are in the waters of the great lakes. It had been supposed that this number, which has been recently increased, and which is so large in proportion to the whole number in use in all the waters of our country, had satisfied the immediate needs of lake navigation, but if it shall appear that more are needed, the board will take great pleasure in establishing them so soon as congress provides proper light-house tenders on the lakes needed to handle such additional gas buoys."

Commander Ackley says that "the board has not been made aware of any strong desire on the part of lake vessel interests for the immediate establishment of more gas buoys." This is probably a mistake due to the naval secretary not being fully informed regarding the petitions of ship masters and lake vessel owners forwarded to Congress and the light-house officials through Senators McMillan and Hanna and Cangressman Burton of Ohio, previous to his (Commander Ackley's) connection with the board. These petitions contained a long list of places where gas buoys are still badly needed, and it was with a view to securing a very large number of these buoys for the places named in the petitions that the representatives of lake interests in congress worked for the general buoyage appropriation of $550,000. They also sought an appropriation for two new light-house tenders for the lakes, and when they failed in this, on account of the large number of vessels which it was expected the government would have on hand after the war, it was proposed to fit up an old spare tender from the Atlantic coast and send her to the lakes with a gas tank and other appliances. But even this latter vessel has since been pressed into coast service, and now the lakes are without either the buoys or a ship to care for them. There is little hope of anything being done towards more buoys this season, but the lake interests are, of course, expecting that the light-house board will bear in mind the fact that they are entitled to very liberal treatment in this regard, and that if possible a tender or two should be transferred to the lakes this fall, so as to provide a complete system of buoys early next season.

New Lake Light House Officials.

Commander C. O. Allibone, inspector of the ninth light-house district, has issued a notice directing attention to vacancies that exist in positions under the light-house board in his district, which includes Lake Michigan, Green bay and tributary waters. Among the positions to be filled is that of engineer for a light-house vessel and four assistant engineers for light-house vessels. All applications for the positions will be examined on Sept. 12, the applicants graded according to merit and a list of those eligible for appointment sent to the light-house board.

Lieut. Commander Kennedy, who succeeded Capt. William F. Folger as inspector of the eleventh light-house district with headquarters at Detroit, has been ordered to Norfolk navy yard for duty as ordnance officer, and the tenth and eleventh districts have therefore been temporarily consolidated under charge of Commander Franklin Hanford, with headquarters at Buffalo. It would be manifestly impossible for Commander Hanford to give his personal attention to inspection duties on Lakes Ontario, Huron, Erie and Superior, and Lieut. Commander F. O. Davenport (retired) of Detroit has been temporarily called into service to assist him.

A report, which has not as yet been authenticated, was circulated this week to the effect that the government has purchased fifteen acres of land at Charlevoix and will locate there a supply station for the ninth district. According to the report the Gray's reef, Simmon's reef and White Shoals reef light-ships will go into winter quarters at this new station in future, together with other vessels, gas buoys, etc., that are used in the vicinity of the Straits of Mackinac.

To Niagara Falls via the Nickel Plate road, Aug. 27. Special train leaves Cleveland at 10:05 p. m. $3.00 for the round trip. $1.00 extra to Toronto. Secure sleeping car space in advance at city ticket office, 189 Superior street. Aug. 26, 188

OUR MARITIME FUTURE.

SENATOR McMILLAN OF MICHIGAN AND PRESIDENT H. M. HANNA OF THE GLOBE IRON WORKS CO. DISCUSS IT FOR THE REVIEW.

Following the very interesting collection of opinions of prominent men on the subject of our navy and merchant marine, presented in last week's issue of this paper, Mr. H. M. Hanna, president of the Globe Iron Works Co. of Cleveland, and Senator McMillan of Michigan have favored the Review by the acceptance of an invitation to say something on the same subject. Mr. Hanna was in the navy when a young man. He is known throughout the United States on account of a life-long connection with shipping interests. He organized the Cleveland Vessel Owners' Association and took part also in the organization of the Lake Carriers' Association. Of late years he has been a great traveler and a student of the commercial affairs of the leading maritime nations. Senator McMillan is also prominent in shipping circles by reason of his sterling championship of vessel interests in the upper house of congress. Considering the subject, two more able commentators could not be found. The letters follow:

FROM MR. H. MELVILLE HANNA.

Editors Marine Review.—I am in receipt of your request for "a few lines, giving briefly my opinion of the present war and the conditions growing out of it, upon our merchant marine and export trade." I will not occupy your space with comments on the war. The subject is too large for brief comments. The effect of it on our merchant marine and export trade will depend upon the disposition made of the islands we have, or may, conquer and control. If the government of the United States succeeds in establishing and maintaining a stable government in Cuba and Porto Rico, American emigration and American capital will populate the islands and develop their resources. There is no richer or more productive land in the world. While the climate is tropical, the heat and natural health conditions will compare favorably with our gulf states. The same malarial conditions exist in both countries. The infectious fevers can be stamped out of Cuba and Porto Rico as effectively with proper sanitary conditions and regulations as they have been here.

From the resources and emigration and development of these countries would come the benefits to our merchant marine and export trade. Cuba and Porto Rico have a population of about two and one-half millions. They are capable of sustaining twenty-five or thirty millions. I believe the tide of American emigration to Cuba and Porto Rico, when peace and good government is established, will be large and continuous. The product of American labor and capital will naturally find its market in American ships, as well as their imports from this country. The same benefits would accrue to our merchant marine in the Philippines or Sandwich islands, where citizens of the United States dominate the trade and control the products of the lands. The enterprizing and sagacious American merchant will seek and occupy any field (where our government insures the protection of his rights) that offers fair returns for his labor and his money.

I will comment very briefly on "the most advantageous naval policy to be adopted." This war has demonstrated the intelligence and efficiency of our naval officers and seamen. It has shown to the world that our naval schools at Annapolis and Newport have produced men whose skill and judgment in war and sound diplomacy challenges universal admiration. It has shown that the design, armament and gun equipment of our modern ships is unequaled. The improved machinery for rapid firing has made our ships three times as effective in offensive warfare as the Spanish ships. Our navy in this war has made new and brilliant history. The "naval policy" I would leave to wiser and more experienced minds. The rapid firing guns have shown their power and destructive abilities. The war has given no test of torpedoes and torpedo boats. I think they would be found invaluable for harbor defense, manned by American officers and seamen. With increased territory and increased coast line, the government must provide a navy that will protect its sovereignty and the person and property of its people the world over.

Cleveland, Aug. 16, 1898. H. MELVILLE HANNA.

SENATOR McMILLAN'S VIEWS.

Editor Marine Review:—Replying to your letter, I would say that in my judgment the most important result of the recent war with Spain is to place the United States in the position to dictate the conditions under which the world may trade with the Hawaiian islands, Cuba, Porto Rico and the Philippines. The general policy of both England and this country is to develop new territory, to make it productive, and so to fix the conditions therein as to create and to foster commerce. The islands controlled by Spain, while naturally productive in the highest degree, have been kept back by laws and customs that have survived from the dark ages. True imperialism means opening the doors of the tropics to those laws, rights and customs that we of the temperate zone group together under the general name of liberty. In accomplishing this trade and commerce are enormously increased.

A careful reading of Washington's farewell address will show that the statesmen whose opinions are represented in that remarkable state paper looked forward to the time when this nation, having become firmly established, would of necessity take equal place among the nations of the world, its flag known and respected on every sea where commerce has won, or may win, a place. And the framers of the Monroe doctrine never dreamed that when they drew the circle of freedom around the struggling republics of the new world they thereby pledged this nation for all time to maintain in the old world the barbarisms of an out-grown monarchial system. The remarkable success of the Australian colonies, the rejuvenation of Japan, the opening of the Congo region, and of South Africa, to say nothing of the development of India and Egypt, all show how the new commercial spirit can both carry the benefits of civilization back to worn-out old lands, and also can conquer savagery and make isolated regions a part of the great world of traffic.

In this beneficent work the United States is now forced to take part. We cannot go back, even if we would. The duty of the statesman, therefore, is not to stand still and cry out against imperialism, but to see to it that in the task that has been imposed upon this nation our course shall be governed by motives of justice and good will towards those over whom we are called to exercise authority. In carrying out a policy such as has been outlined, a strong navy and a strong army-police will be needed; and these provided, the American steamship will soon draw its lines across every sky, and the stars and stripes will again find a welcome in those ports where once it floated from the masthead of the merchant racers of the seas. JAMES McMILLAN.

Washington, D. C., Aug. 15, 1898.

Reliable Account of the Manitou Breakdown.

Marine engineers will be interested in reliable information regarding the accident which a few days ago befell the engines of the Lake Michigan & Lake Superior Transportation Co's steamer Manitou. Mr. R. L. Peck, chief engineer of the vessel, has kindly furnished particulars to the Review. The steamer was proceeding south on the nineteenth trip of the season, at the usual rate of speed, at 12.18 a. m. on Saturday, Aug. 6, when the slide gib on the low pressure crosshead broke and fell in the crank pit. The strain thus thrown on the crosshead caused the crosshead binder bolts to break, while the connecting rod being free pushed the crosshead, piston rod and piston up, smashing the cylinder, cylinder head and two front columns supporting it. The crosshead binder, with a part of the bolt and the nut on one side remaining in it, fell in the pits and the cranks rolling upon it caused the bed plate to be broken at the two after journals, breaking them entirely loose from the body of the bed plate. The rock shaft was bent and there was other damage but it was of a minor character. The accident was sudden in its start, and from the time the warning click indicated that something was wrong until the damage was complete was an elapsed period of not more than twenty seconds.

The original conclusion arrived at by Mr Peck, and which was generally concurred in by engineers who had examined the wreck, was that the crosshead gib let go first, the other things following as a natural sequence. Later, however, the chief engineer's opinions as to the primary cause underwent a change, he having reached the conclusion that the first break occurred on the inside bolt on the crosshead connection, or in other words the binder bolt holding the connecting rod in the crosshead. A close examination has shown a defect in the bolt, and this with the general appearance of the break induces the conclusion that this was the first thing to give way, the the other bolt breaking, as might be expected, from the excessive strain thrown upon it. The other breaks, of course, followed in the order given above.

The entire engine has been taken out of the vessel and all the broken parts will be replaced by new ones. The engine will be re-erected and tested in the shop before it is again placed on board the Manitou, so that it is doubtful if the steamer will be enabled to go into commission again this season although an attempt is to be made to make one trip.

Referring to the accident in a letter to the Review, Mr. Joseph Austrian, President and General Manager of the Lake Michigan & Lake Superior Transportation Co., says: "It was one of those accidents which have happened and will happen again. The engine immediately before the mishap worked as fine and smoothly as it is possible for an engine to work, and it was just like a stroke of lightning from a clear sky when the breakdown occurred. It is now recommended, and will be carried out, that all the crosshead bolts on the engine be made of nickel steel, and no expense will be spared to have the Manitou when the engine repairs are complete come out in as perfect a condition as it is possible for any machinery to be."

Sault Canal Complaints.

It would seem that there is little foundation for complaints sent to the newspapers of late about inattention on the part of employes at the American canal, Sault Ste. Marie, to their duties in connection with the passage of vessels through the canals. It was charged that the men at the American locks were disinclined to take lines from the vessels and that better service was afforded at the Canadian lock. The complaint probably emanated from some captain who was actuated by a personal grievance.

Captain E. B. Anderson, one of the most prominent Canadian masters, and who has been for years past in command of the Canadian Pacific Railway Co's steamer Manitoba, writes on the subject to Capt. George P. McKay of the Lake Carriers' Association. He says in part: "I have been passing through these canals—either Canadian or American—twice each week during the season of navigation ever since their construction, and I have yet to see any difference in the matter of attention and accommodations. In both canals men are always sent to take our lines until we can get our men ashore, and when coming down the American canal we find a man stationed above the railroad bridge to tell us which lock to enter, so that we need have no trouble when we reach them."

In this connection it may be noted that the war department has denied the petition of citizens of Sault Ste. Marie for a modification of the regulations in force at the canal. It was claimed that the regulations interfered with the sale and delivery of supplies to the boats by merchants of Sault Ste. Marie. The decision regarding the petition has been communicated to the mayor of Sault Ste. Marie by Secretary of War Alger, who announces that the department concurs entirely in an adverse report made by Col. G. J. Lydecker. Col. Lydecker in reviewing the conditions which induced him to early in the season formulate instructions looking to a more careful observance of the rules says: "I have seen the lock walls so crowded as to seriously interfere with shifting and securing the lines of vessels with that promptness which safety demands in many emergencies: seen the lockmen compelled to stop and remove packages from the wall to clear the way, etc.; all tending to obstruction and confusion, where the duty to be performed demands the greatest promptness and alertness in many instances, to prevent an accident of a more or less serious nature."

Religious meetings will be in session at Linwood park, Vermillion, O., from Aug. 2 to 22. The Nickel Plate road has authorized a rate of one fare for the round trip for this occasion. 141, Aug. 20

WIDER AND DEEPER CHANNELS.

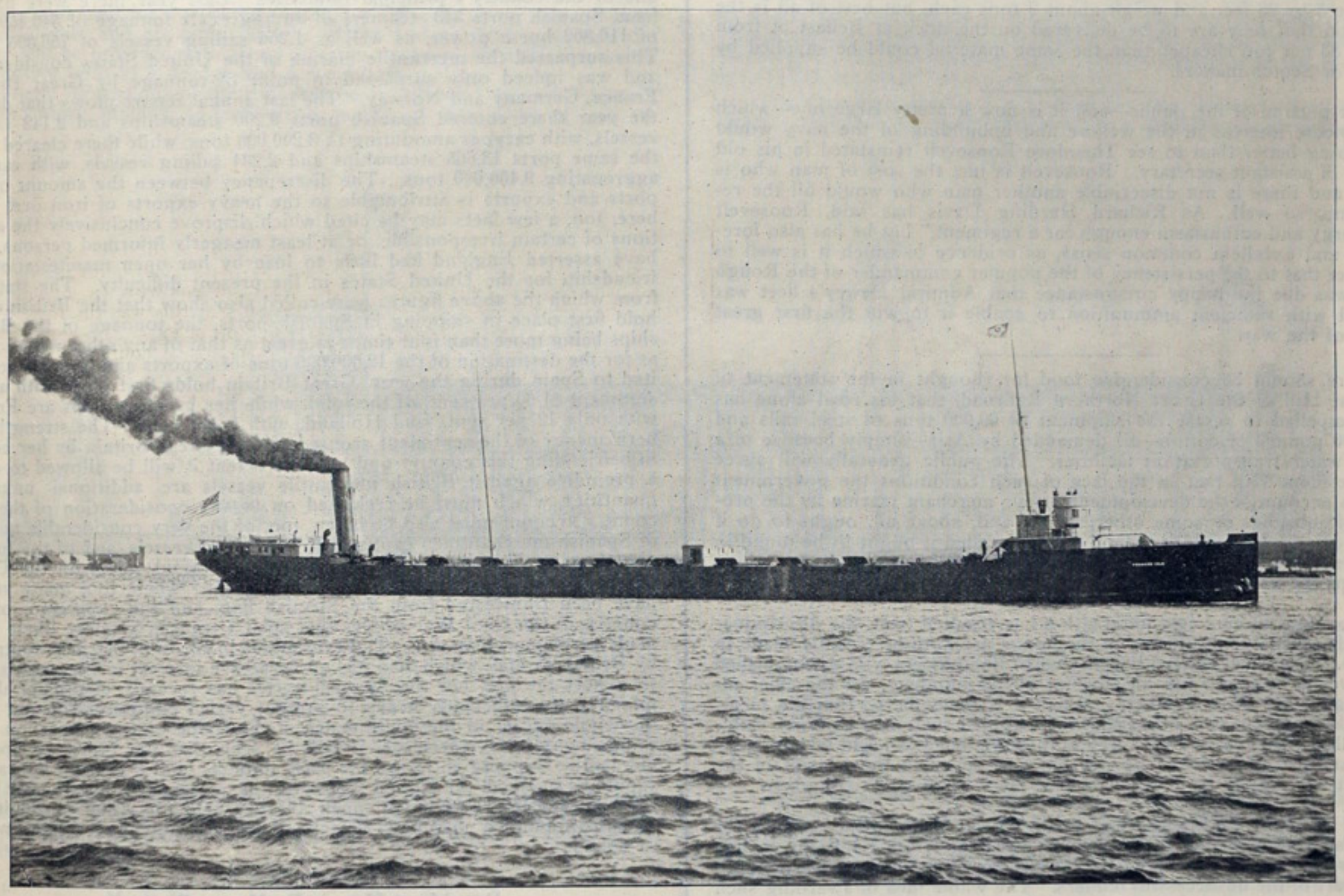
ENGINEERING WORK THAT MUST GO ON IF LAKE VESSELS ARE TO MAINTAIN COMPETITION WITH SOUTHERN ROUTES.—FINISHING THE 20-FOOT CHANNEL PROJECT.

Recent despatches from Detroit indicate a disposition to again take up the project for another St. Clair canal by the side of the present one. This is a new project and before anything can be done regarding it by the army engineers, it will be necessary to have the demand for such an improvement come from the vessel interests through congress. This would probably result in objection from the representatives of the smaller vessel interests who have found that deep channels brought on big ships and big corporations controlling them. But the progress that is necessary to maintain the lake route against competing rail lines to the southern Atlantic and gulf ports will not permit of a halt in channel improvements. The deepening of rivers connecting the lakes will go on; bigger projects than any that have as yet been undertaken will be carried out in later years. These new works are not talked of as yet, for the reason that there are several improvements, all necessary to the completion of the 20-foot channel project, that are of more immediate importance. There is no attempt to disparage the project for a second canal at the St. Clair flats, or the efforts of men who have at one time or another been instrumental in its advocacy, but the belief seems general, nevertheless, that it will be all sufficient to let the new St. Clair waterway come in its own time, and that for the present the problem of improvements is to be found elsewhere.

One of the improvements of immediate necessity is the widening and deepening of the Lime Kilns crossing. It is pointed out that channels in the Detroit river both above and below the Lime Kilns will have next spring a depth of 20 to 21 feet, whereas the depth of the Lime Kiln is only 19 feet. Indeed on many charts the depth is marked at only 18 feet, but the crossing was swept out last spring to a full depth of 19 feet. The dredges at present working at Ballard's reef above the Lime Kilns and farther down the river between Amherstburg and Bois Blanc island have made sufficient progress to insure early next season a channel of 20 feet depth at these points so that there will then be in all the distance from Lake Huron to Lake Erie only one short reach—the Lime-Kilns—in which the depth will be less than 20 feet. It follows, therefore, that the deepening of this cut must be accomplished as soon as possible. Probably it can be done from funds unexpended on the original 20-foot channel contracts. In any event there is every reason to expect 19 feet of water everywhere throughout the St. Clair and Detroit rivers next spring, or possibly late this fall. With respect to the widening of the Lime-Kilns cut the arguments are equally good, it being pointed out that wide channels are to be found, or are under construction, the entire distance from Ballard's reef down to the crossing and from the lower end of the crossing down past Amherstburg and out into Lake Erie. At none of these places will the width be less than 600 feet when the work at present in progress is completed, whereas in other parts of the rivers the width of channel is fully 800 feet. The present width of the Lime-Kilns crossing, however, is only 440 feet. An increase of 160 feet in the width of this channel, bringing it up to the regulation 600 feet, has long been advocated. It will come soon, now; very probably in advance of anything like a second St. Clair canal cut. It has been said that there are funds for the Lime-Kilns improvement available from the balance of 20-foot channel appropriations, but this is doubtful. There is no doubt, however, of available funds for the deepening of this cut to 20 feet.

Another contemplated improvement which should be placed in the same general classification is the projected dredging of the American channel at Stag island, St. Clair river, of which the Review had occasion to make mention a few weeks ago. It is understood that a large portion of the funds necessary to provide for this work are immediately available, and presumably the work of dredging this channel to a depth of 21 feet will be undertaken with little delay. The American channel is wider and in many ways more desirable than the Canadian, which has heretofore been used by both up and down bound vessels, and with the removal of the bad spots which now obstruct the channel, the down bound boats will use the American and the up bound boats the Canadian channel.

Most important of all, however, are proposed improvements for the vicinity of the Neebish St. Mary's river. The work of deepening the middle Neebish channel, at present in progress, and which has reduced the navigable width available for the passage of vessels to 150 feet, has induced so much inconvenience to vessel men that they naturally regard with anything but satisfaction the prospect of the condition that will prevail when it is sought to widen this channel, and yet steps looking to just such an improvement will be necessary within a short time, for with the proportions which lake commerce is assuming the 300 foot channels in the Sault river have already been found inadequate. It is now proposed to allow the middle Neebish channel to remain of the present width and to cut a new passage way in the west channel. This plan is reported to have met with instant favor in the eyes of every vessel man to whom it has been presented, and the present officials of the United States engineer force have so far endorsed it as to express wonder that the original plans did not contemplate the utilization of the west channel. It is stated that hasty but careful estimates indicate that the widening of the middle channel from 300 to 600 feet would necessitate an expenditure of fully $1,500,000, while the outlay entailed in making a 600 foot cut in the west channel would not exceed $2,000,000. Better still, the adoption of the latter plan would enable the carrying out of the improvement without the slightest inconvenience to shipping interests, all vessels continuing to use the middle channel until the west channel cut was entirely completed. When the new channel was completed down bound vessels could take the west channel, and up bound vessels continue to use as at present the middle channel. This would give an advantage of four or five miles, the proposed west channel being at least that much shorter than the middle channel.



Freight Steamer Presque Isle, Built for the Cleveland-Cliffs Iron Co.

One of the most thoroughly modern freight carrying steamers that has gone into commission on the great lakes this season is the Presque Isle, completed by the Cleveland Ship Building Co., a few months since, for the Cleveland-Cliffs Iron Co. She is 426 feet over all, 406 feet keel, 50 feet beam and 28 feet deep. Her approximate capacity on 17 feet draught is 5,750 tons, and the vessel is valued at $220,000. She is fitted with quadruple expansion engines aud two Babcock and Wilcox watertube boilers of 250 pounds pressure.

MARINE REVIEW

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It is exceedingly gratifying for Americans to note the keen concern of English and Scotch steel manufacturers over the fact that American-manufactured steel seems to have secured so firm a foothold among large consumers on the other side of the Atlantic. It was only last May that the first consignment of American steel was delivered at Belfast for Harland & Wolff, one of the largest ship building firms in the world, and now comes the news that another order for 800 tons of material has been given to the same firm at Pittsburg which filled the former order. The plates are to be 5 by 28 feet and weigh about 2 tons each, but best of all is the confession that they are to be delivered on the dock at Belfast at from $2.50 to $3 per ton cheaper than the same material could be supplied by English or Scotch makers.

That portion of the public—and it is now a pretty large one—which has a sincere interest in the welfare and upbuilding of the navy would like nothing better than to see Theodore Roosevelt reinstated in his old position of assistant secretary. Roosevelt is just the sort of man who is needed, and there is not discernible another man who would fill the requirements so well. As Richard Harding Davis has said, Roosevelt "has energy and enthusiasm enough for a regiment," but he has also forethought and excellent common sense, as evidence of which it is well to remember that to the persistency of the popular commander of the Rough Riders was due the happy circumstance that Admiral Dewey's fleet was provided with sufficient ammunition to enable it to win the first great victory of the war.

There should be considerable food for thought in the statement of President Hill of the Great Northern Railroad, that his road alone has been compelled to refuse the shipment of 60,000 tons of steel rails and 30,000,000 pounds of cotton—all demanded by Asia—simply because of a lack of water transportation facilities. The public generally will agree with President Hill that in the face of such conditions the government ought to encourage the development of our merchant marine by the provision of subsidies or some other means, and, above all, ought to do it without delay. If an added incentive were needed it ought to be found in the enormous sums which we were compelled to pay for ordinary transport ships for war service.

An arousal of very just indignation has resulted from the discrimination made against staff officers in the honor promotions recently made in the navy. The usual reward vouchsafed to line officers who distinguished themselves at Santiago was an advance of five numbers, yet the chief engineers gain but three numbers. When it is remembered that the members of the engineer corps thus slighted included such men as Chief Engineer Millagn, who carried the Oregon through her wonderful voyage from San Francisco and worked up her burst of speed in the pursuit of the Colon, it will readily be understood that there is cause for complaint.

The failure of the Spanish line, to which was awarded the contract for the transportation of the 22,000 Spanish prisoners from Santiago, to live up to its agreement, has naturally caused considerable inward chuckling on the part of the unsuccessful bidders. The whole idea of awarding such a contract to a Spanish company was, in the eyes of shipping men generally, one of the few blunders of the war. It was hardly in keeping with what it would seem should be the maritime policy of the administration.

Chief Engineer R. L. Peck of the steamer Manitou appears to be what men term the "right sort." In a letter to the Review describing the recent accident to the engine of his steamer Mr. Peck says: "Now I have one favor to ask. The newspapers here have given my simple act of duty a great deal of prominence, and I wish you would say nothing about it in your account of the affair. I saved my own life and am thankful for it, but don't consider I am a Hobson yet."

It would seem as if the postoffice department should not begrudge the appropriation of $15,000 necessary to provide a steamer especially for the use of the Detroit river marine postal service. According to a report just made the service grew from 50,000 pieces of mail handled the first season to 200,000 pieces handled last season, while it is estimated that 500,000 pieces will be received and delivered this season.

The value to the navy of the great lakes with their immense complement of sailors will in all probability not again be questioned. Lieut. Jerome E. Morse, in charge of the U. S. S. Michigan, recruiting rendezvous at Erie, reports that since May 17 there have been 2,000 applications and 474 enlistments. It is also worthy of comment that there has not been a single desertion from this rendezvous.

Side by side with Commodore Perry's famous message, "We have met the enemy and they are ours," there will ring down through history that beautiful tribute of Capt. Robley D. Evans to the men of the Iowa: "So long as the enemy showed his flag they fought like American seamen, but when the flag came down they were as gentle and tender as American women."

Future of the Spanish Merchant Marine.

The future of the mercantile marine of Spain might prove, at present, a very interesting and fruitful subject for discussion, were it not for the great degree of uncertainty which characterizes not only the outcome but the influences which will contribute to future developments. The case of the Spanish nation under existing circumstances has had few parallels in history, and even in those which have most nearly approached it there has been an uniformity of solution that could be expected to prove an infallible formula for the unraveling of the problem. Other nations, notably Great Britain, have sustained blows to their mercantile shipping interests proportionately quite as severe as that administered to Spain, and yet it would be with much hesitation that anyone would assert that these revenues impaired England's ultimate development in this line. With Spain, however, the case would seem to be different, and there are many who believe that it will be only after a long time, if ever, that the nation will regain the standing which was hers before the outbreak of the war. This view they base mainly upon two influences—the natural indolence and inactivity of the Spanish race and their deprivement of Cuba, whose ship builders have all along supplied the parent country with a majority of its vessels for the mercantile marine.

It may be well, too, to stop a moment and look into the extent of Spain's shipping, lest there be a danger of underestimating what, by reason of the extent of seacoast and the large number of ports, has really been one of the country's principal industries. Last year there were hailing from Spanish ports 543 steamers of an aggregate tonnage of 546,459, and of 110,802 horse power, as well as 1,256 sailing vessels of 756,305 tons. This surpassed the mercantile marine of the United States considerably, and was indeed only surpassed in point of tonnage by Great Britain, France, Germany and Norway. The last annual report shows that during the year there entered Spanish ports 9,200 steamships and 2,142 sailing vessels, with cargoes amounting to 3,200,000 tons, while there cleared from the same ports 13,665 steamships and 2,234 sailing vessels, with cargoes aggregating 9,400,000 tons. The discrepency between the amount of imports and exports is attributable to the heavy exports of iron ore. Just here, too, a few facts may be cited which disprove conclusively the assertions of certain irresponsible, or at least meagerly informed persons, who have asserted England had little to lose by her open manifestations of friendship for the United States in the present difficulty. The statistics from which the above figures were culled also show that the British easily hold first place in shipping in Spanish ports, the tonnage of the British ships being more than four times as great as that of any other nation; and, as for the destination of the 12,600,000 tons of exports and imports accredited to Spain during the year, Great Britain holds first place with an assignment of 60 per cent. of the total, while her greatest rivals are France, with only 12 per cent., and Holland, with 9 per cent. The strength and permanency of the sentiment aroused against Great Britain by her course in befriending this country and to what extent it will be allowed to cause a prejudice against British mercantile vessels are additional unknown quantities, which must be reckoned on in any consideration of the outcome. Account must also be taken, too, of the very considerable number of Spanish merchantmen captured by our naval vessels, and of the further complement sheltered at Havana and at numerous inlets on the Cuban coast, and whose ultimate fate is yet in doubt. Then, too, many vessels have been transferred from the Spanish flag, and the experience of this country in the Civil War proves that such a transfer is more likely to be made permanent than not. The iron mines in Spain are largely controlled by British capital, which also has an extensive interest in the vessels used to export the ore, but the Spanish cortes has recently placed on all ore mined a tax sufficiently heavy to present varied complications and leave the whole matter of the continuance of the traffic an open question. All things considered, therefore, it will be seen that the future of Spanish mercantile shipping is, to say the least, dubious, and if present indications should be justified, the United States will have reaped another benefit from the war, inasmuch as it will open another field for American-built and American-manned merchant vessels, if we are only aggressive enough to seize it.

President Henry G. Morse Resigns.

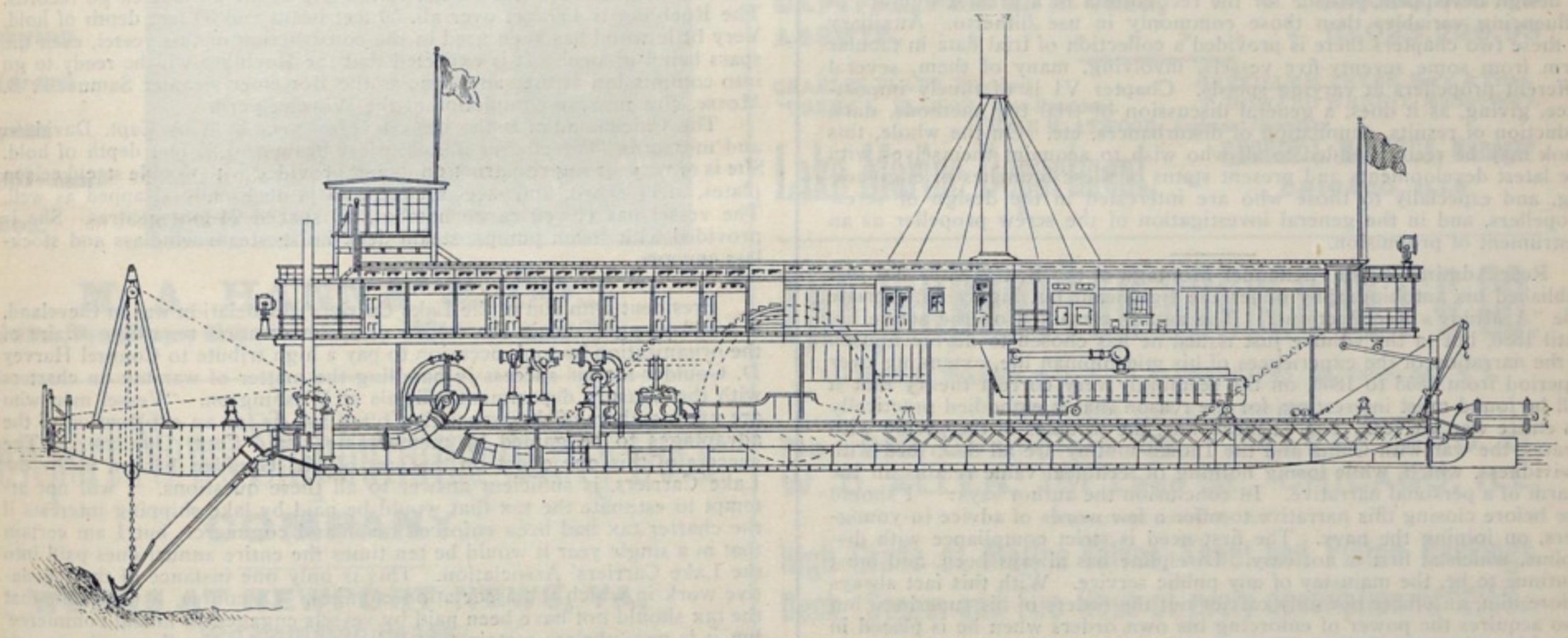
Mr. Henry G. Morse, who for the past two years has held the position of president of the Harlen & Hollingsworth Co., ship builders of Wilmington, Delaware, last week tendered his resignation, to take effect after the annual meeting a few days later. Mr. Morse's action has not been entirely unanticipated in ship building circles, as it has been known for some time that there existed in the firm a degree of internal dissention which he felt practically nullified his efforts. The retiring president has certainly demonstrated energy in his administration of affairs. He assumed the direction of affairs at a time when the yard had very few orders on hand, and during his two years' connection with the plant there were secured contracts for the torpedo boat Stringham, Howard Gould's yacht Niagara, George W. Childs Drexel's yacht Alcedo, and two steamers for the Merchants' & Miners' Transportation Co., in addition to some smaller work. Considerable machinery was added to the equipment of the plant. Mr. Morse has not announced his plans for the future. In speaking of his retirement the Morning News of Wilmington says: "Mr. Morse has every reason to feel gratified at his success as the head of the Harlan & Hollingsworth Co. He is an indefatigible worker and his work shows for itself. He is a man of rare executive ability and he is in touch with those who have occasion to purchase the products of the company from which he is to retire. Wilmington has reason to be gratified at the energy shown by Mr. Morse in attracting business to this city. He has done remarkably well and it would be a matter for regret if his lines should be cast in other places. More men like Mr. Morse in active business here would be of decided advantage to the city."

A fast cruiser in steaming for a day at top speed—say 21 knots—will burn over 300 tons of coal. At 17 knots she would burn about 250 tons, and at 11 knots the consumption for the twenty-four hours would probably not be more than 75 tons.

Powerful New Hydraulic Dredge.

Presentation is herewith made of an outboard drawing of the new self-propelling hydraulic dredge to be constructed for the Mississippi River Commission, of which Capt. H. E. Waterman of St. Louis is secretary. This dredge is designed to have a single sand pumping outfit and also to be self-propelling. The hull is to be of steel throughout, with guards extending to outside of paddle boxes, the knuckles rounded, the bow and stern to be made with long rakes, the usual suction well to be built and bow and towing knees at head, and is estimated to have a draft of 48 inches when fully equipped. The pumping machinery will consist of a centrifugal pump with 32-inch discharge pipes, and will be capable of delivering not less than 1,000 cubic yards of sand per hour through 1,000 feet of pipe under average field conditions. This pump will be driven by a pair of horizontal tandem compound condensing engines, capable of running at 175 revolutions per minute. The sand agitator will be of the water-jet type, supplied with water at pressure ranging from 60 to 100 pounds per square inch, by a duplex compound plunger pump. The feeding into cut will be done by wire rope haulage, similar to that adopted for all dredges of the commission. The pipe line will be 500 feet long, in sections of 50 feet, each carried by a pontoon and arranged with swivel movement to permit of their swinging to the current. The propeling machinery will consist of two side paddle wheels, each 21 feet diameter and 10½ feet long, driven by engines of the Mississippi river type. The steam plant will consist of seven Mississippi river four-flued boilers set in three batteries, and built for a working pressure of 170 pounds per square inch. The condenser and air pump will be of the Independent type, and the dredge will be provided with steam steering apparatus and all accessories for working both as a dredge and a steamboat.

General dimensions of the hull will be as follows: Length, molded, 192 feet; width, molded, 44 feet; depth, molded, 7 feet; width at bow, 32 feet; width at stern, 34 feet; width over guards, outside of nosing, 70 feet; length of well, 33 feet; width of well at nose, 25 feet. The dredge will be equipped with a complete electric light plant, including two search lights of 4,000 candle power.



HYDRAULIC DREDGE TO BE CONSTRUCTED FOR THE MISSISSIPPI RIVER COMMISSION.

More Buoys Needed at Bar Point.

Amherstburg, Aug. 17. Some facts regarding conditions affecting Bar point channel were brought out by the investigation following the grounding of the steamer Coralia a few days ago. The position of the buoy left by the Coralia on the spot where she grounded was computed from observations made almost immediately after the grounding. This buoy was found to be 3,200 feet from the Detroit river light house and 490 feet east of the center of the channel, which is equivalent to 90 feet east of the east channel line. At the time the Coralia went aground and for some time previous the most southerly red stake was out of position. This was determined from transit pointings from shore stations to the channel buoys in the vicinity, taken July 26. The positions of these buoys were not computed until after the Coralia grounded but it was then found that all of the red stakes were too far east, the most southerly stake being about 300 feet east of the east channel bank. Capt. Cummings of the Coralia was undoubtedly mislead by reason of the fact that these buoys were so far out of position. The government engineers working at this point and Light-House Keeper Andrew Hackett concur in the opinion, however, that there are no obstructions in the channel and that if the channel buoys are kept in their proper positions no trouble, such as that induced by the grounding of vessels, will be possible. Something of the difficulties experienced in caring for the buoys will be understood when it is stated that on August 9 Capt. Hackett saw to it that all the buoys were moved to their true positions along the channel bank, and a red spar placed along this line near where the Coralia grounded. During the same night, however, the red spar buoy was carried away. This experience is by no means a newone. The prevailing opinion among men best qualified to know is that if the Canadian department of marine would grant the petition recently presented to it, to place black spar buoys along the west channel line, vessels would not run so close to the red spars, or at any rate would have the buoys on one side to guide them if those on the other side should be misplaced or carried away.

Recent Contracts in the Ship Yards.

John H. Dialogue & Son, Camden, N. J., have the contract for a tug for J. N. Walsh of Mobile, Ala.

The Neafie & Levy Ship and Engine Building Co. of Philadelphia has commenced work on a 170-foot tug, the names of whose owners they refuse to divulge.

The Union Iron Works, San Francisco, has secured from the Oregon Railway Navigation Co. a contract for an ocean going steel tug for service at the mouth of the Columbia river.

It is reported that the Standard Oil Co. is negotiating with the Canadian Locomotive & Engine Works of Kingston, Ont., for the construction of a number of steel tank barges to carry oil from refineries to the distributing points.

Joseph W. Brooks & Son of Madison, Dorchester county, Md., have under construction an 80-foot wooden tug boat for Capt. E. T. Williams of Norfolk. Engine, boiler and machinery will be furnished by E. J. Cood Co. of Baltimore.

Ship building operations at Apalachicola, Fla., are active. Two steamers, one ninety and the other 140 feet in length, are under construction for the Independent Navigation Co. A 150-foot steamer for river service, building for W. A. Gains, will be completed within two months.

The Baker-Whitely Coal Co. of Baltimore will add two tug boats to its fleet. The contract for a 75-foot tug, to be equipped with compound engines and a return tubular steel boiler, has been let to the Spedden Ship Building Co. but according to latest reports the contract for the second vessel (120 feet long) has not yet been let.

The Canadian Pacific Navigation Co. has decided to build a fast steamer, to be known as the Charmer, for a daylight service between Victoria and Vancouver. Plans have already been prepared, it is stated, but action postponed because of the fact that the ship building firms of England and Scotland have on hand too much work to undertake the contract at a price satisfactory to the navigation company.

The ship building business formerly carried on at Baltimore under the name of the R. M. Spedden Co. has attained such proportions that an incorporation has been made as the Spedden Shipbuilding Co. with a capital stock of $150,000, divided into 3,000 shares of $50 each. The incorporators who have been elected directors for one year, are Robert M. Spedden, Edward McIntyre, Joseph E. Henderson, Edward J. Thomas and William S. Hugg.

The Columbian Iron Works, Baltimore, Md., has secured from the Consolidated Coal Co. a contract for a second sea-going tug to be similar to the Cumberland, recently delivered. The new vessel will be of steel, 152 feet over all, 27½ feet beam and 16½ feet depth. Her triple expansion engines will have cylinders of 16.24 and 41 inches with 30 inches stroe,, and two 10½ by 12 feet 4-inch boilers are to carry 160 pounds of steam. The firm will purchase for use on the tug steam steering gear, a search light, a donkey boiler, powerful wrecking pump, towing machine, circulating, feed and bilge pumps, etc.

Col. Jared A. Smith United States engineer at Cleveland, recently received a letter from Chief Engineer E. A. Handy of the Lake Shore Railway Co. complaining of the inconvenience to the company occasioned by several recent groundings of vessels in the Cuyahoga river just north of the Lake Shore company's bridge and in such position as to prevent the draw being closed. In a reply Col. Smith called attention to the fact that congress at its last session made no appropriations for river and harbor work, and that all funds previously appropriated are for specific purposes, which do not include maintenance of water depths and cannot be applied for that purpose. The same general condition prevails at ports other than Cleveland. At Sandusky, for instance, the city and interested persons have taken up the matter and obtained permission to do the work at their own expense. In previous years the war department was in possession of a special fund, which was used in emergency cases, but the last congress did not even provide a fund of this kind.

Some New Naval Books.

"Resistance and Propulsion of Ships," by W. F. Durand, professor of marine engineering at Cornell university; received from J. Wiley & Sons, New York—This book, to quote from the author's preface, "has been prepared in the belief that there might be a field of usefulness for a connected and fairly comprehensive expositon of this subject from the modern scientific and engineering standpoint." The author has naturally drawn to a considerable extent from the recent literature of the subject, for which due acknowledgments are made. With this material, however, there has been combined a very considerable amount of original matter, which contributes largely to the general interest and value of the work. The book is divided into six chapters under the following heads: I, Resistance; II, Propulsion; III, Reaction between Ship and Propeller; IV, Propeller Design; V, Powering Ships; VI, Trial Trips. As is necessary in such a work a free use has been made of calculus and mechanics in the development of the subject, but at the same time most of the important results and considerations bearing on them are discussed in general terms and from a descriptive standpoint, and all operations involved in the actual solution of problems are reduced to simple expression in terms of elementary mathematical processes. It is thus possible, by the omission of the parts involving higher mathematics, to still obtain a fairly connected idea of most of the subject from the descriptive standpoint, and to apply all methods developed for purposes of design. In chapters IV and V in particular, practical methods for the design of screw propellers and for the powering of ships are developed and illustrated in great detail, so that anyone with some measure of judgment in such matters should be able to make intelligent use of the most recent and reliable data and methods for the solution of problems arising in these fields of marine engineering. The chapter on propeller design has had the benefit of the author's extended experiments on model propellers now in progress, and the methods of design developed, provide for the recognition of a greater number of influencing variables than those commonly in use hitherto. Auxiliary to these two chapters there is provided a collection of trial data in tabular form from some seventy-five vessels, involving, many of them, several different propellers at varying speeds. Chapter VI is of timely importance, giving, as it does, a general discussion of trial trip methods, data, reduction of results, elimination of disturbances, etc. On the whole, this book may be recommended to all who wish to acquaint themselves with the latest developments and present status of these branches of engineering, and especially to those who are interested in the design of screw propellers, and in the general investigation of the screw propeller as an instrument of propulsion.

Rear Admiral Victor Alexander Montagu of the British navy has just published his autobiography under the significant but highly appropriate title "A Middy's Recollections." The author remained on the active list until 1886, but in the volume just issued he has chosen to devote himself to the narration of the experiences of his midshipman life, extending over a period from 1853 to 1860, on the seemingly very correct theory that it will be found most interesting, for the reason that it embodied practically his entire war serivce. The Crimean war, the troubles of the period with pirates, the war with China and the Indian mutiny are all described with a vividness, which, while losing nothing of technical value retains all the charm of a personal narrative. In conclusion the author says: "I should like before closing this narrative to offer a few words of advice to youngsters, on joining the navy. The first need is strict compliance with discipline, which at first is not easy. Discipline has always been, and must continue to be, the mainstay of any public service. With this fact always before him, an officer not only carries out the orders of his superiors, but also acquires the power of enforcing his own orders when he is placed in a position of responsibility. There have been great changes since I joined the service. Officers and men are much more highly educated. The discipline is no longer the same and the methods of enforcing it are changed. This only means that influence and character play a more important part than force does. This, again means that a more delicate and arduous task falls on the youngster who joins the navy. His tact and his example are more important than ever; and with a higher education and another class of men to deal with, his character tells for more every day. He must never forget that he has to set before himself the highest standard of efficiency and conduct at home and abroad, at sea, and on shore." The volume is handsomely illustrated with portraits of the author and pictures of the naval vessels of the period. Published by the Macmillan Co., New York. Price, $2.00.

"The Naval Pocket Book" compiled by G. Carr Laughton and published by W. Thacker & Co., 2 Creed Lane, London, appears this year considerably enlarged. The volume presents in a manner favorable for reference particulars of vessels in all the navies of the world. A new system of classification of vessels, based upon power, size, speed and date of construction, has also been introduced.

The latest number of Charles Griffin & Co's "Nautical Series" is just from press in the form of "Hints on the Legal Duties of Ship Masters" by Benedict W. Ginsburg. The author disclaims any intention to present a legal text-book and has handled his subject in a clear and non-technical manner. The J. B. Lippincott Co.; price, $1.75.

Plea for American Steamers.

A good word on behalf of the encouragement by governmental action of the development of our mercantile marine is embodied in the annual report of the American Iron and Steel Association, which has just been issued. The report says: "Much is said in the newspapers about the means that are necessary to increase our exports of manufactured products to foreign countries. We repeat what we have heretofore said, that the way to increase these exports is to subsidize mail steamship lines between our principal ports and the principal ports of other countries. Trade would follow the flag and it would be greatly helped by regular and frequent means of communication. We should also build the Nicaragua canal for commercial as well as for military reasons. The trade of the Orient would then largely fall into our hands."

Notice Regarding Cleveland Harbor Works.

The contractors for placing the foundation for east breakwater extension at Cleveland harbor are experiencing considerable trouble from the destruction of their location marks. Under their contract with the United States they are required to drive a number of piles along the proposed line of extension, and to maintain a light from sunset to sunrise upon the most easterly pile. Many of these piles have been destroyed by vessels striking them, resulting in delays to the work and expense to the contractors. The private range established for entrance to the Cuddy-Mullen and the Northern line wharves passes through the midst of these piles, but the range need not be followed further than 1,000 feet from the wharves, as there is ample depth from that point to the eastward inside the piling. A notice will be soon issued from the office of Col. Smith, United States engineer, calling attention to this trouble, warning all persons against interference with the marks, and that the penalty imposed by the United States statutes will be enforced. Col. Smith also desires it known that through the 200-foot opening in west breakwater there are many rocks projecting to within 13 feet of the ordinary water surface and that the passage is not considered safe for vessels drawing more than 10 feet of water.

Two Launches at West Bay City.

Two large vessels, a wooden and a steel schooner, were launched last Saturday from the yards at West Bay City. The steel schooner John A. Roebling, building for the Bessemer Steamship Co., went into the water at the Wheeler yard and the wooden schooner Chickamauga was christened at the yard of Capt. James Davidson. The Roebling is almost an exact counterpart of the schooner John Fritz, launched from the same yard a short time ago, and which on her initial trip broke all lake cargo records. The Roebling is 456 feet over all, 50 feet beam and 30 feet depth of hold. Very little wood has been used in the construction of this vessel, even the spars being of steel. It is expected that the Roebling will be ready to go into commission at the same time as the Bessemer steamer Samuel F. B. Morse, now nearing completion at the Wheeler yard.

The Chickamauga is the largest vessel ever built by Capt. Davidson and measures 335 feet over all, 45½ feet beam and 25 feet depth of hold. She is of very strong construction, being provided with double steel keelson plates, steel chord, and steel arches, and is diagonally strapped as well. The vessel has eleven cargo hatches, all spaced 24-foot centres. She is provided with steam pumps, steam deck hoist, steam windlass and stockless anchors.

President Dunham of the Lake Carriers' Association was in Cleveland, a few days ago, and in the course of a conversation regarding affairs of the organization he took occasion to pay a high tribute to Counsel Harvey D. Goulder for his success in handling the matter of war tax on charters with the treasury department officials at Washington. "Vessel men who are not members of the association often ask us for an explanation of the advantages to be gained by membership," said Capt. Dunham. "The success of this one effort on the part of Mr. Goulder, backed up by the Lake Carriers, is sufficient answer to all these questions. I will not attempt to estimate the tax that would be paid by lake shipping interests if the charter tax had been enforced on inland commerce, but I am certain that in a single year it would be ten times the entire annual dues paid into the Lake Carriers' Association. This is only one instance of the legislative work in which the association engages. Of course, it was right that the tax should not have been paid by vessels engaged in inland commerce but it is nevertheless certain that if it were not for the thorough manner in which the whole question was handled by Mr. Goulder, the department officials would have found no way of relieving inland shipping interests of a burden not intended for them by congress. Mr. Goulder is entitled to all credit for results in this matter, but it may be well to note also that but for the efforts of Capt. J. J. H. Brown of Buffalo in calling the attention of lake vessel owners to the tax and having a meeting called in Cleveland, and Mr. Goulder prevailed upon to go to Washington, nothing would have been done to escape the tax until it was too late to do so."

The Masters' Manual, issued by the Great Lakes Register, Royal Insurance building, Chicago, will undoubtedly be sought by vessel men everywhere on the lakes. A copy will be mailed to any vessel master upon application. The object of the book, which contains some 125 pages neatly bound, is to give to the ship masters in concise form a collection of laws pertaining to lake navigation, canal rules, and other matters of special interest to them. It is not claimed that the book—at least the first issue—contains anything new. It simply places under one cover a collection of laws, government regulations, etc., that could only be found in the past by search through an endless line of government publications. Part 1 of the manual is devoted entirely to the White law, to the pilot rules for the lakes and to canal and harbor regulations. Part 2 contains information regarding the compass, and part 3 the statutory regulations relating to citizenship of officers, wrecks and wreck reports, suspensions of licenses of officers, appeals from such suspensions, etc. Other parts of the book deal with regulations relating to the carriage of passengers, life-saving matters, storm signals, etc.

A circular letter issued to prospective participants in the national conference on future foreign policy of the United States, to be held at Saratoga this week, announces that the growing demand for the building of the Nicaragua canal will be one of the principal topics discussed.

A one fare for the round trip rate is in effect to Linwood park, Vermillion, O., via the Nickel Plate road, Aug. 2 to 22, account religious meetings. 140, Aug. 20

Fall in, comrades! The Nickel Plate road has authorized low rates to Cincinnati, O., on the occasion of the national encampment, Sept. 5 to 10. Sept. 2, 181

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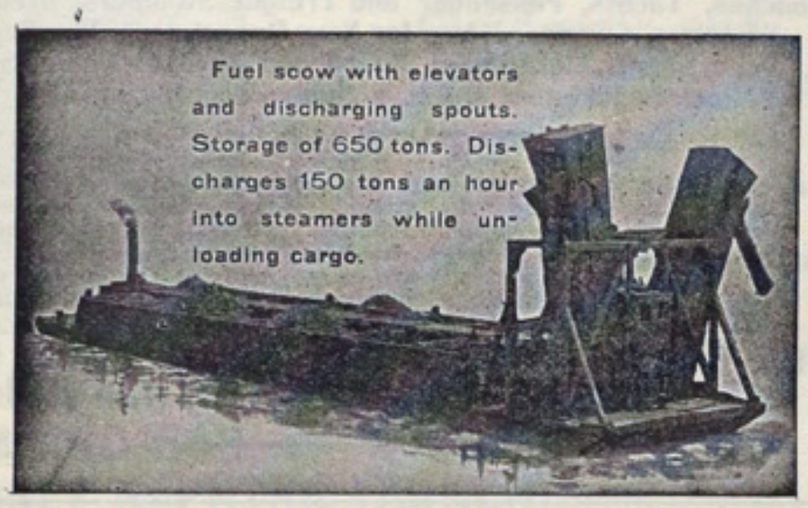
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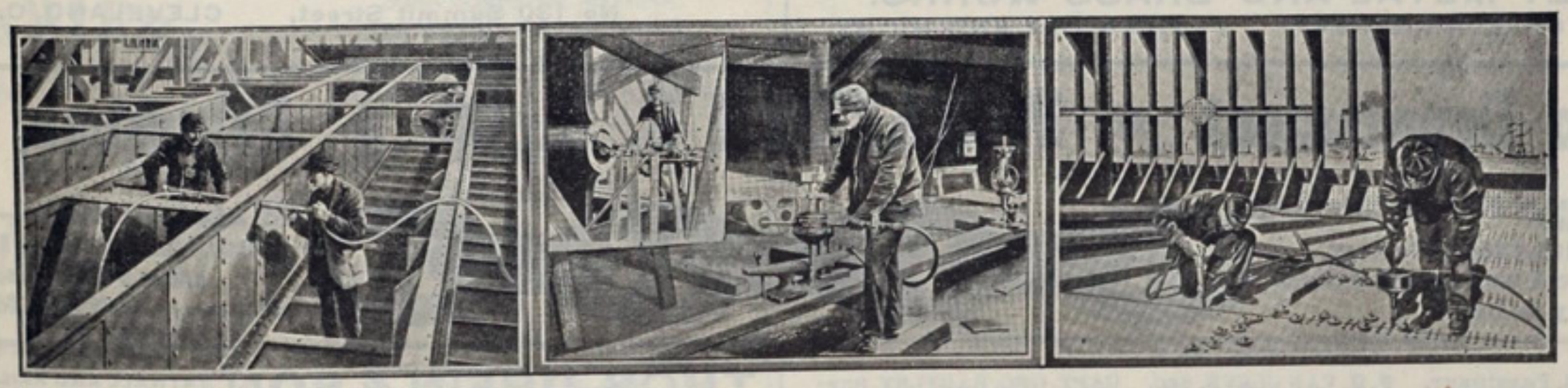

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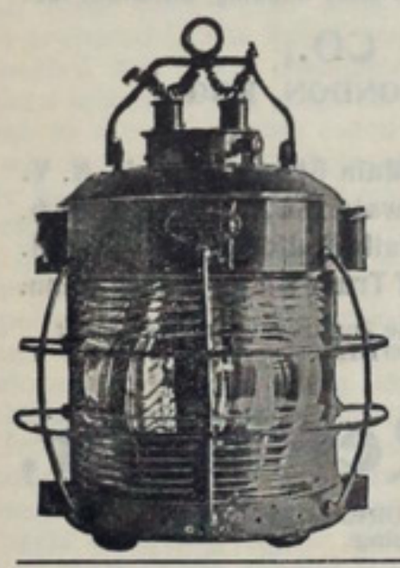

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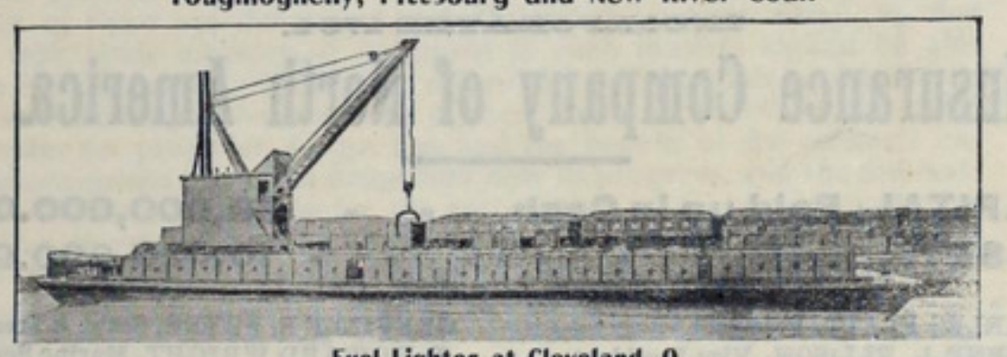

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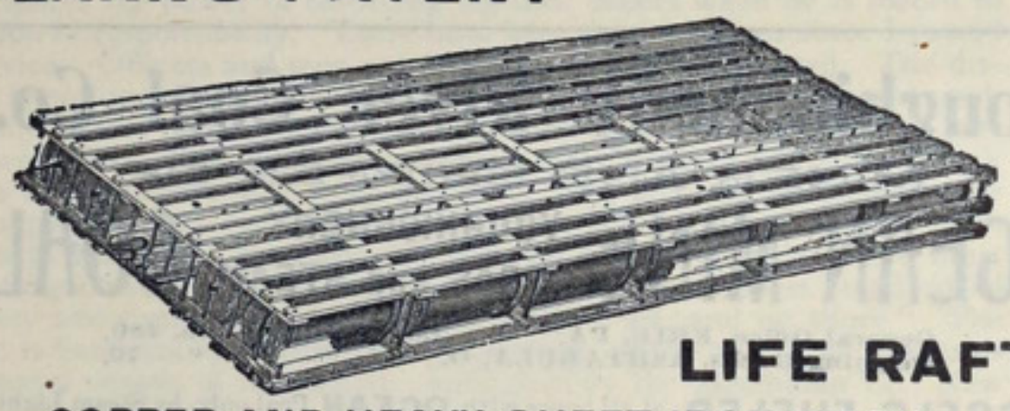

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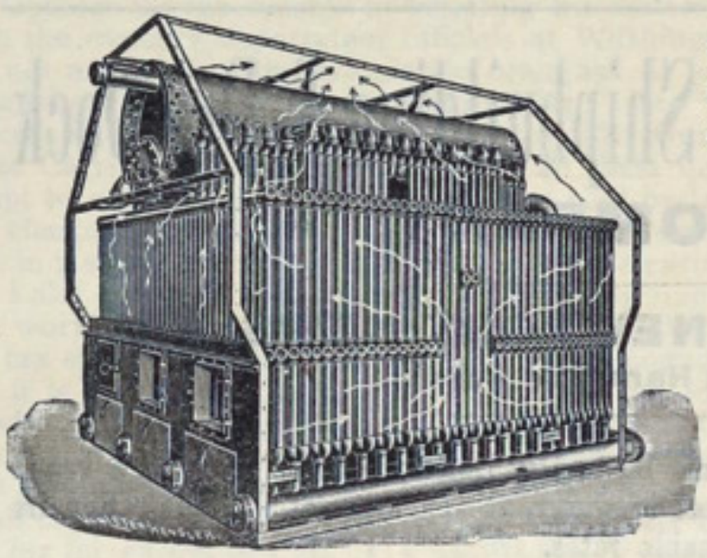

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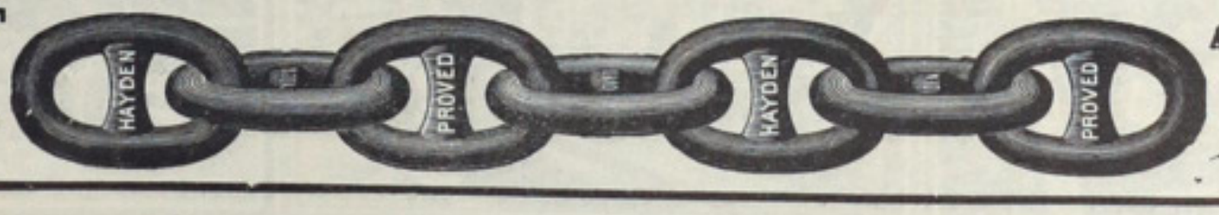

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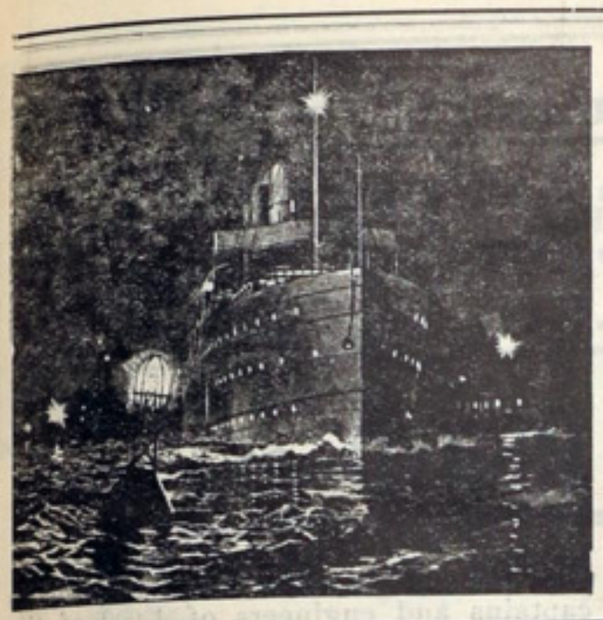

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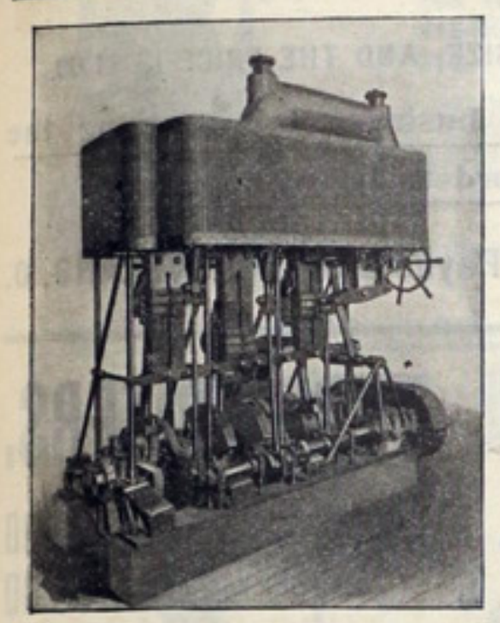

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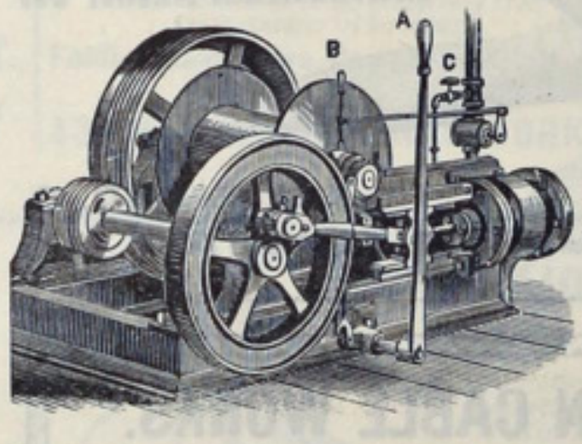

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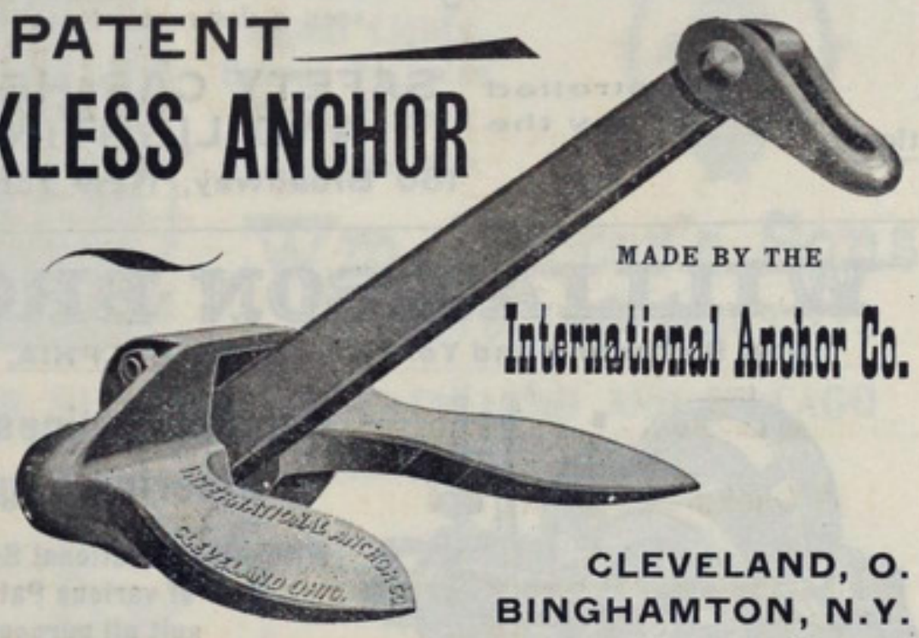

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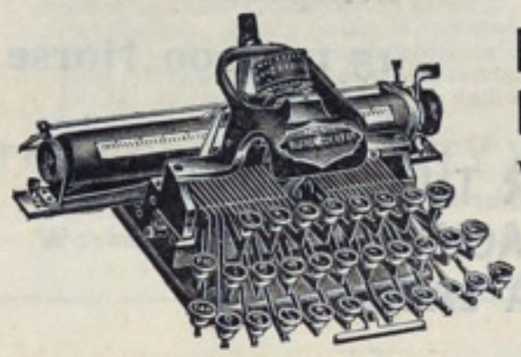

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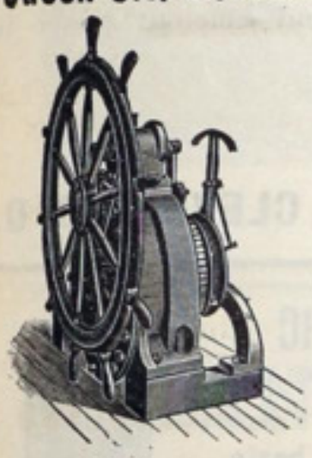

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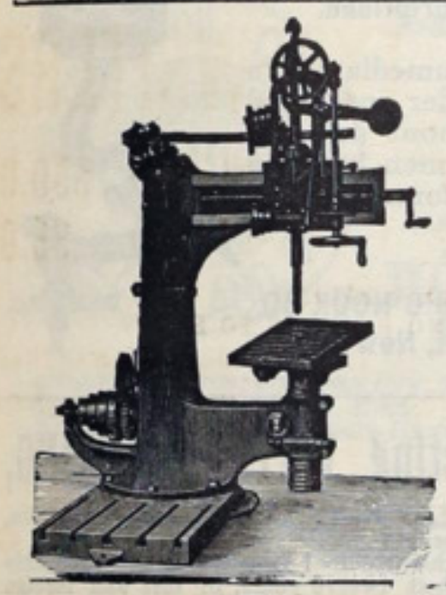

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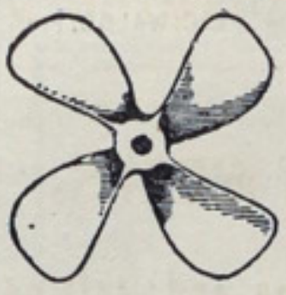

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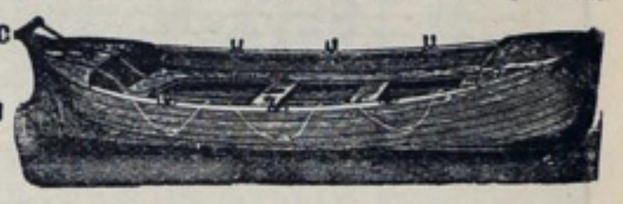

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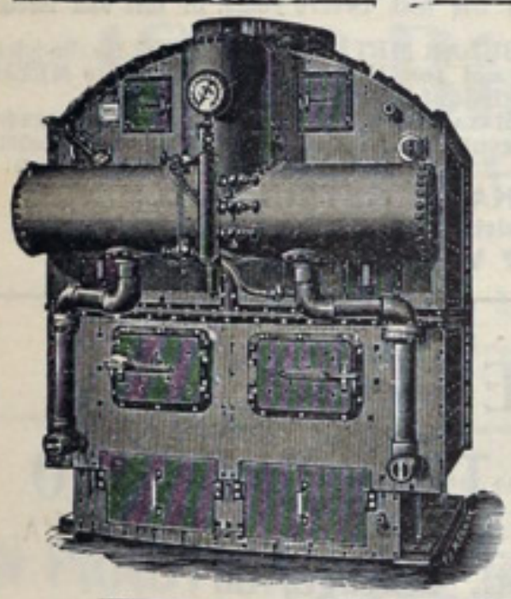

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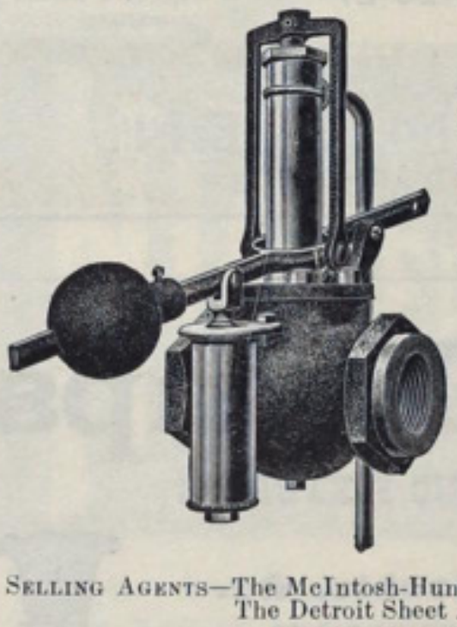

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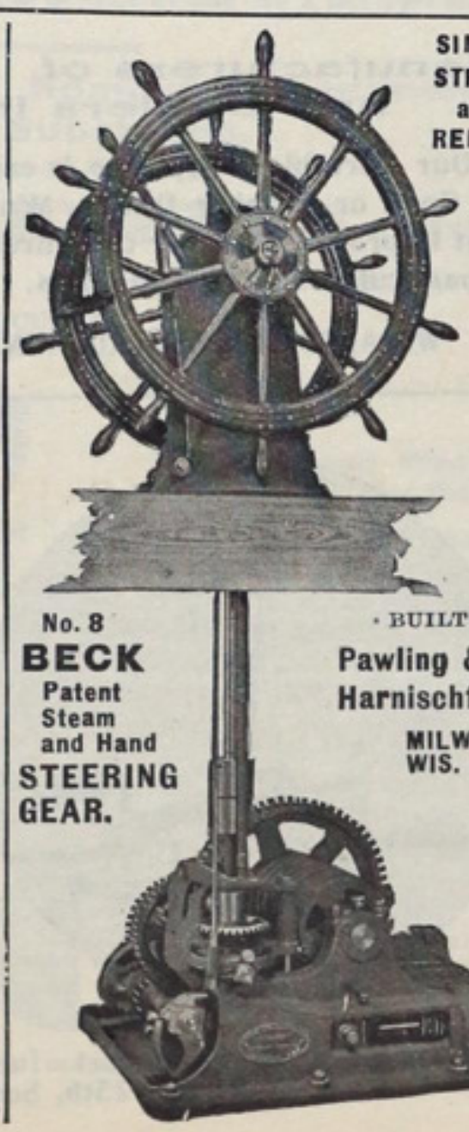

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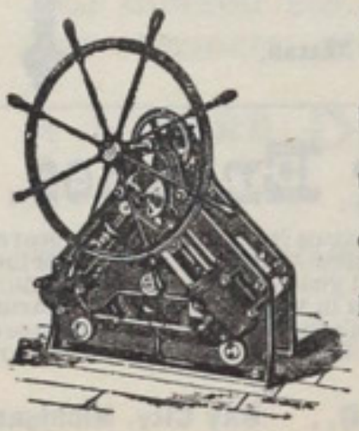

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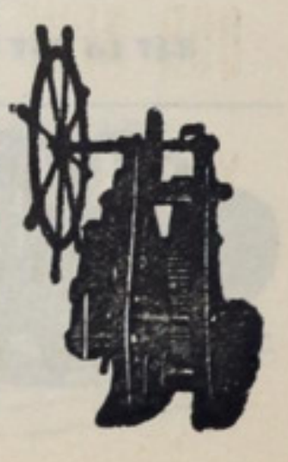

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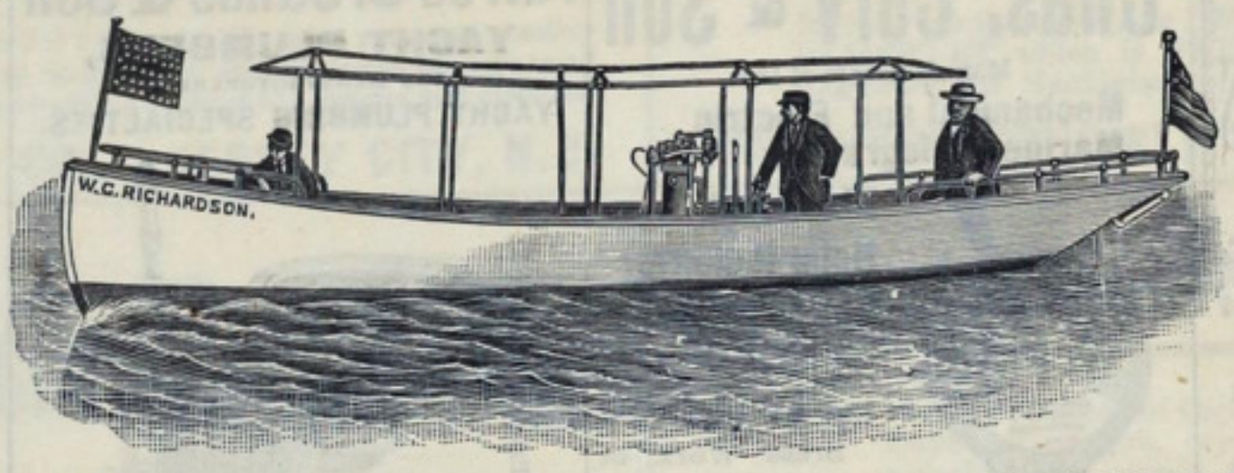

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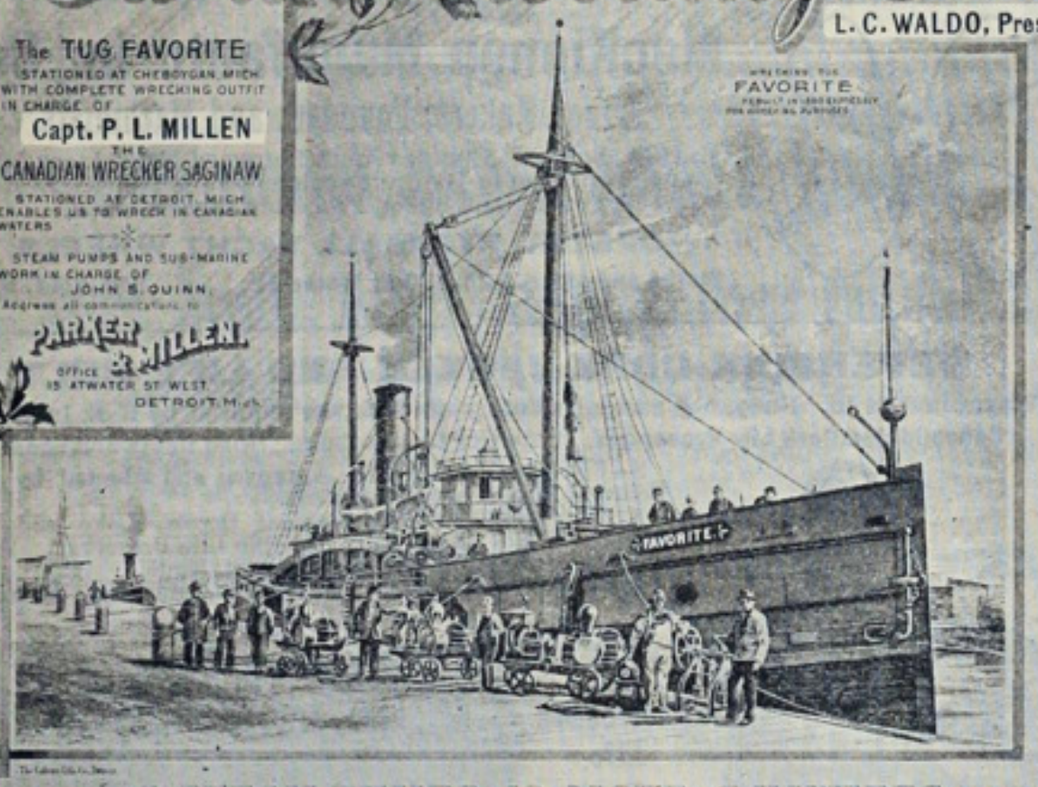

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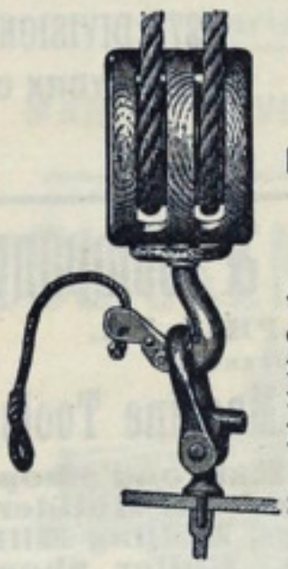

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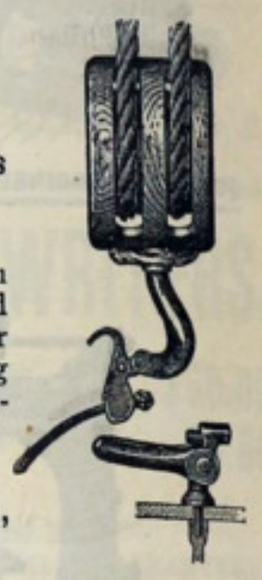

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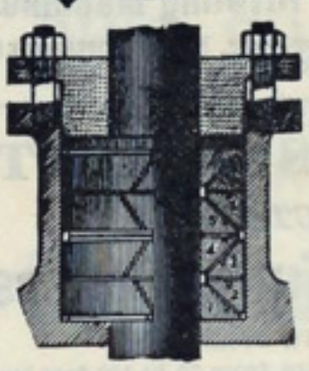

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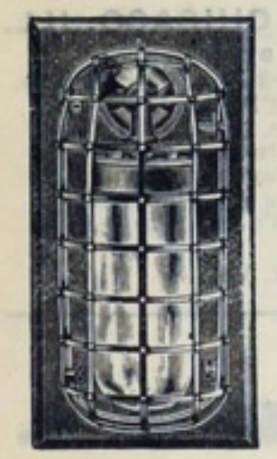

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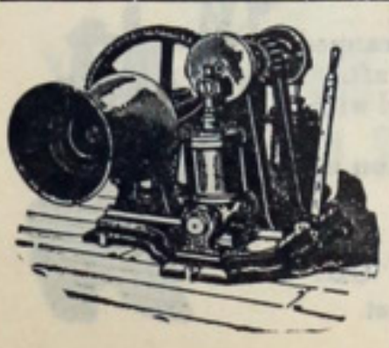

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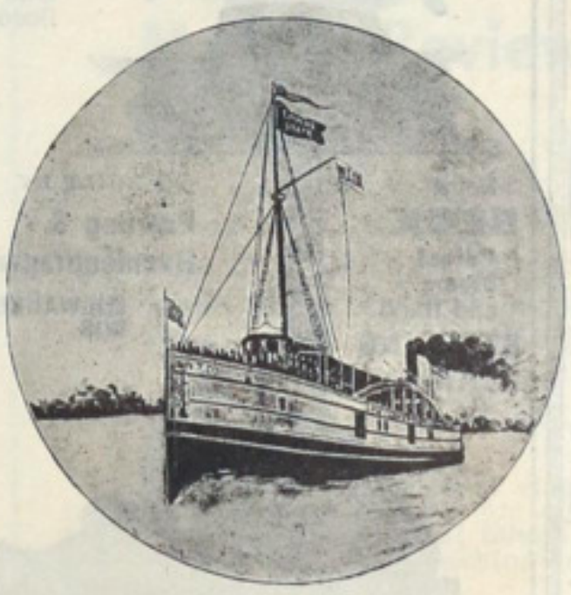

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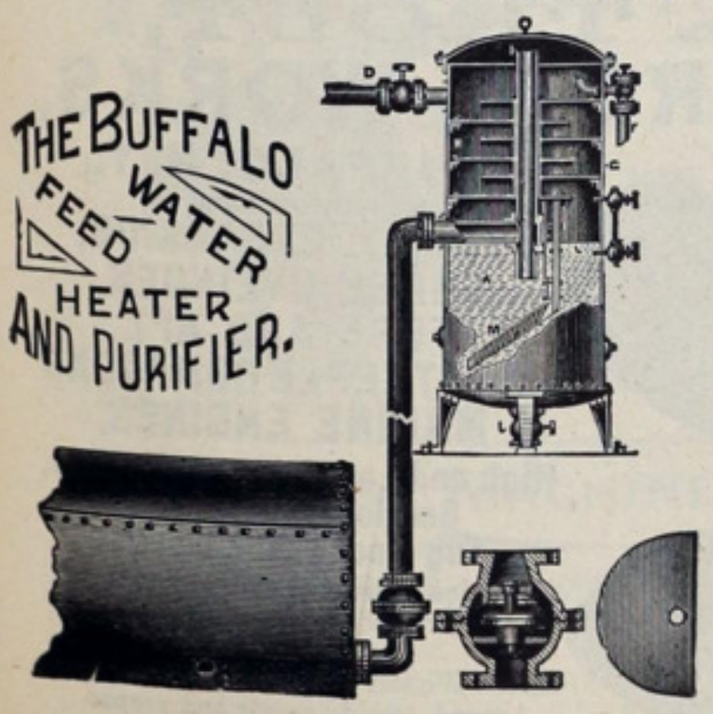

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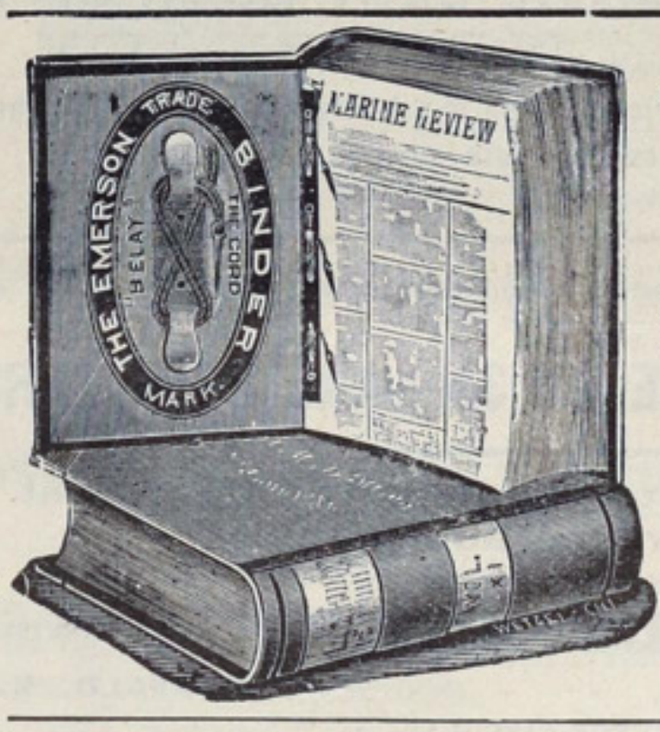

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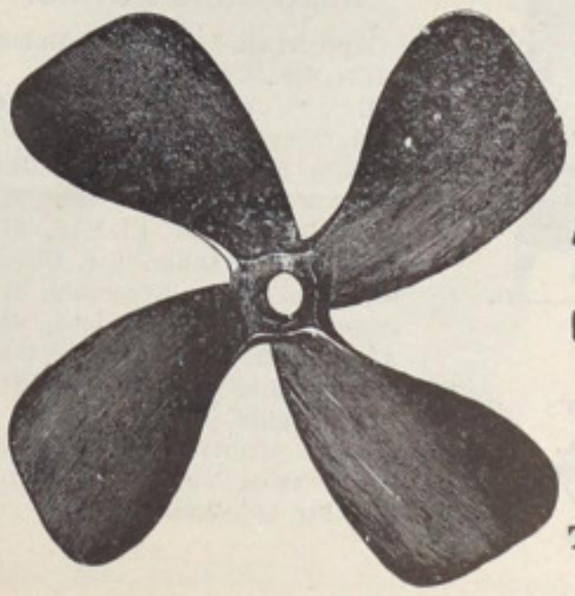

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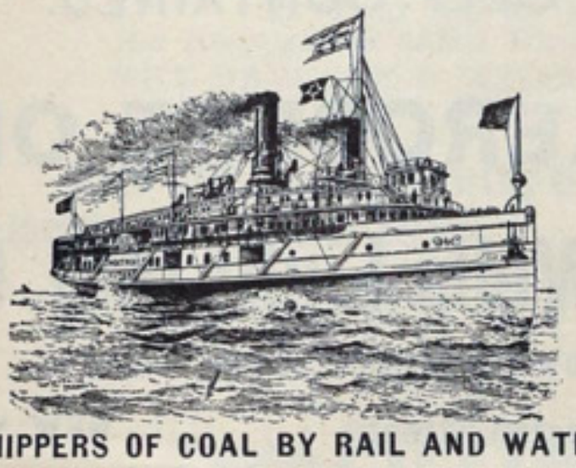

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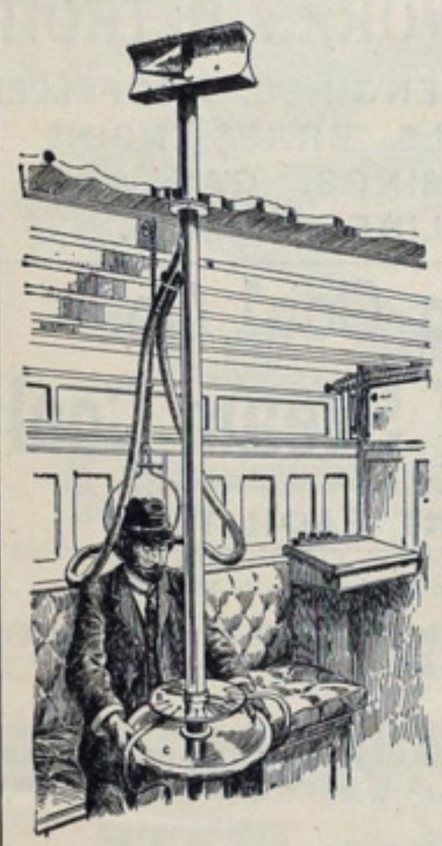

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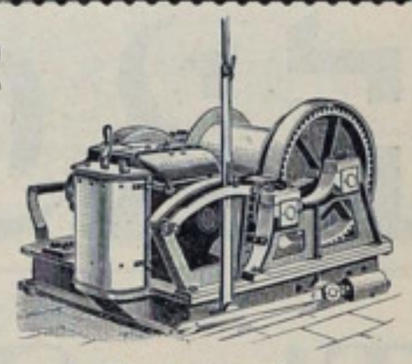

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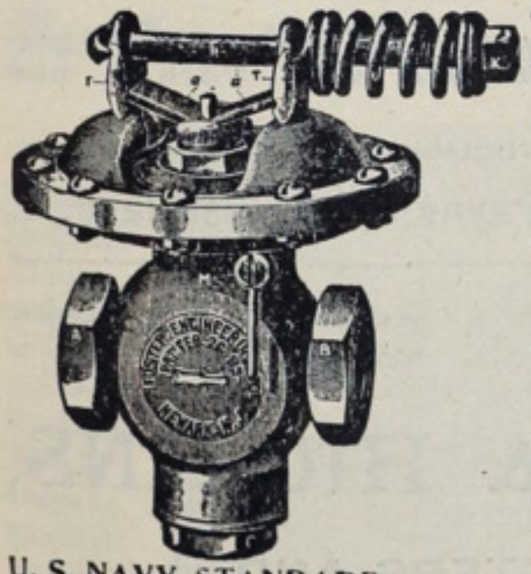

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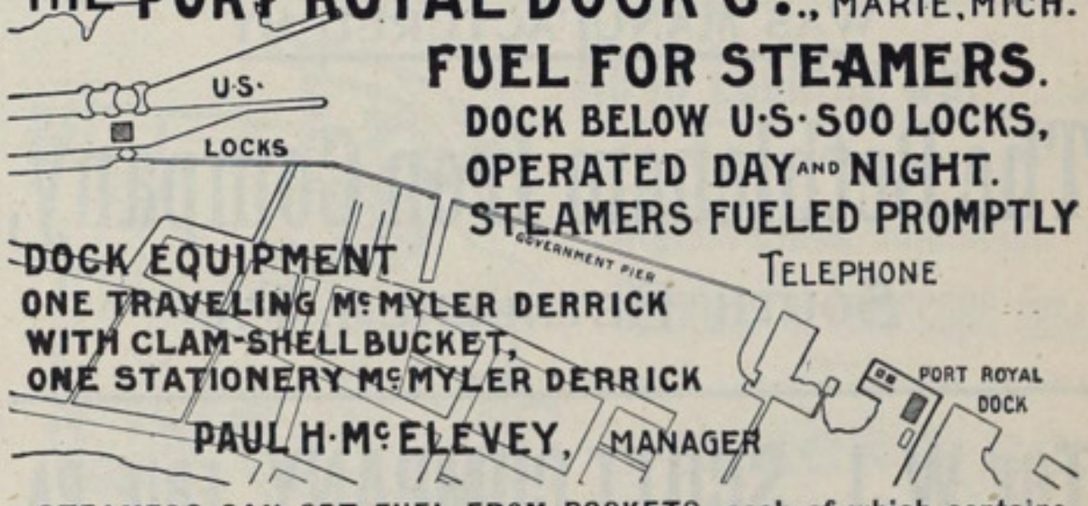

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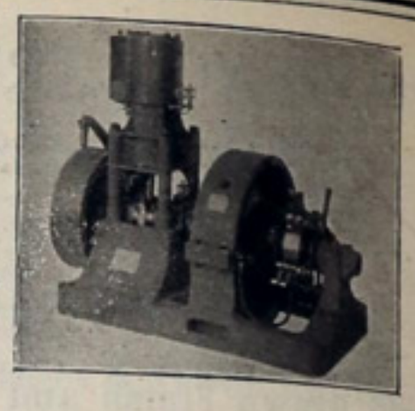

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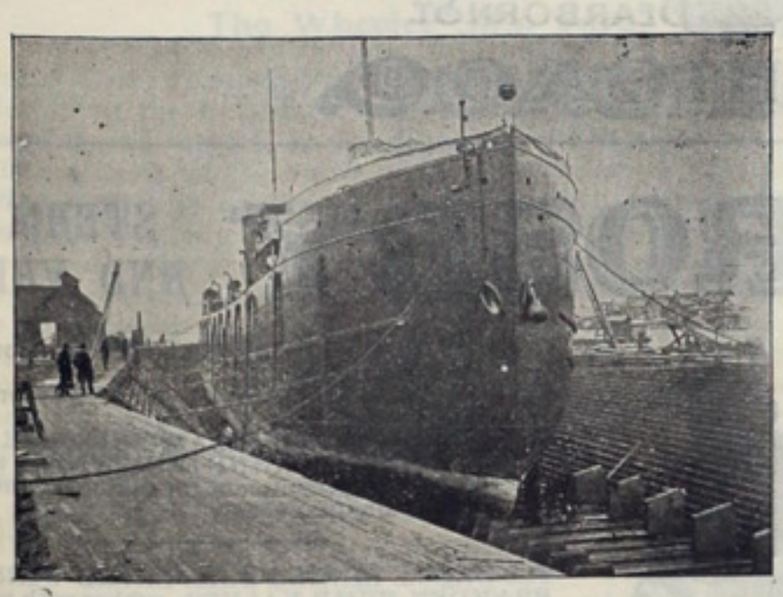

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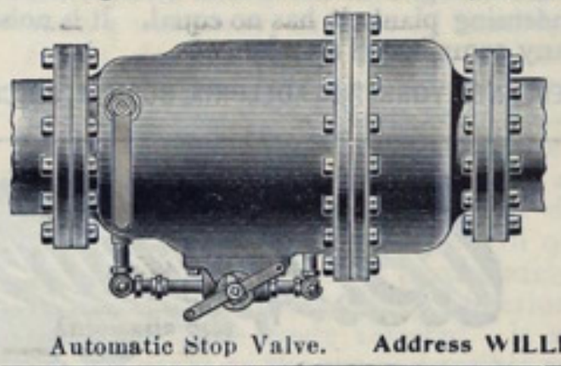

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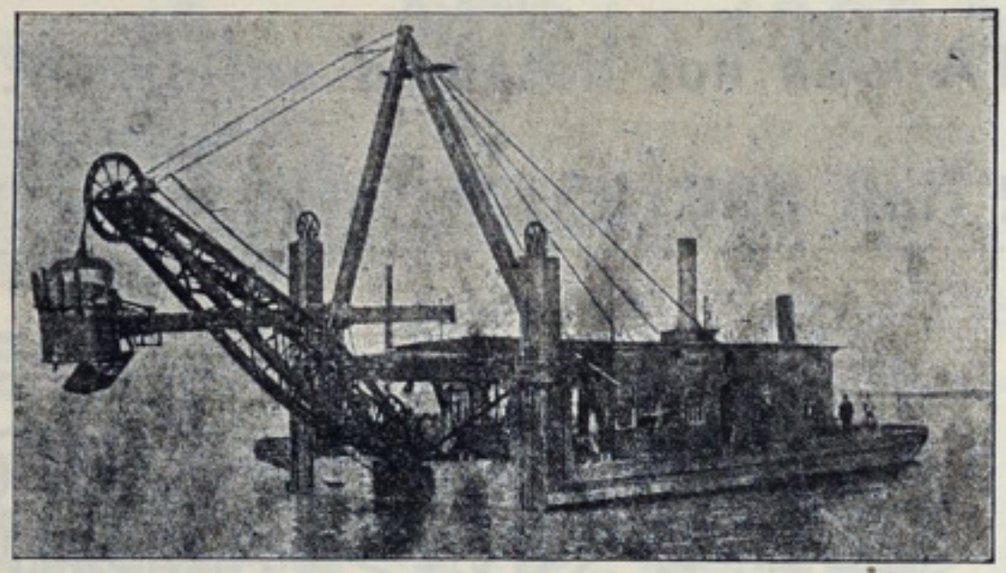

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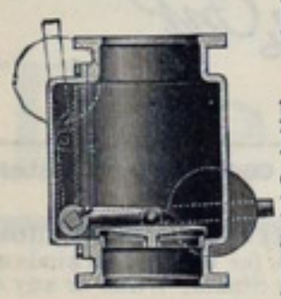

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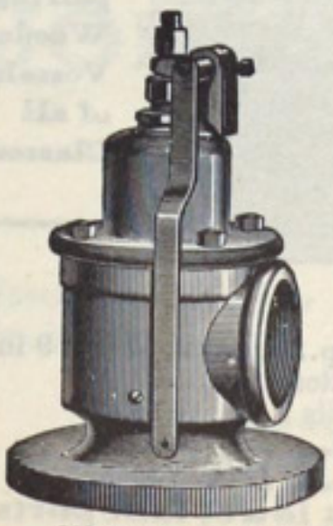

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